5-2021

Divine Cosmos: Emergent Ecology and Nineteenth-Century American Literature

Lucas R. Nossaman
University of Tennessee, Knoxville, lnossama@vols.utk.edu

To the Graduate Council:

I am submitting herewith a dissertation written by Lucas R. Nossaman entitled "Divine Cosmos: Emergent Ecology and Nineteenth-Century American Literature." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in English.

Dawn D. Coleman, Major Professor

We have read this dissertation and recommend its acceptance:

Katy L. Chiles, Thomas F. Haddox, Denise Phillips

Accepted for the Council:

Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

Divine Cosmos: Emergent Ecology and Nineteenth-Century American Literature

A Dissertation Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Lucas Nossaman

May 2021

ACKNOWLEDGMENTS

Dawn Coleman, I consider it a tremendous privilege to have worked under you. You have taught me countless lessons about writing that I will remember for years to come. You responded to my recalcitrant prose and stray theological musings with professional grace. Thank you for believing in this project and for committing so much time to improving it. Katy Chiles, thank you for allowing me to work with you and learn the fields of African American and Native American literature. You forced me to think carefully about different audiences, and for that I am very grateful, and your commitment to archival research has inspired me to keep searching for new discoveries. Thomas Haddox, your Catholicism was a faithful presence as I thought about religion in this project. I knew I could depend on you to ask the why and so what questions, and remembering that someone was looking at the big picture was a great relief to me. Denise Phillips, you went above and beyond as an outside reader. You showed me where to wade into the massive scholarship on religion and science. Most importantly, you knew Humboldt—in German! (What a novelty! Ha.) I feel very blessed to have had you on the committee.

I thank UTK's interlibrary loan and microfilm staffs for helping me locate materials. A University of Tennessee Humanities Center graduate student fellowship made it possible for me to have all of my sources in one location and have a quiet haven in which to complete the work. I thank Joan Murray for answering all my questions and for keeping the Center comfortable and safe in the time of COVID-19. I thank the Riggsby family for their generous financial support of the UTHC that allowed me to purchase research books. A Thoreau Society graduate student fellowship provided funds to visit Boston-area archives, but unfortunately COVID-19 made travel impossible before I finished. However, the award did put me in contact with several relevant Thoreau scholars, and so I here acknowledge the Society's generous help and support.

Several scholars at different institutions have contributed to this project by suggesting and providing sources. I thank Matthew Simmons at the University of South Carolina Center for Digital Humanities for guiding me to essential Simms sources and materials on Charleston. I thank Rochelle Johnson for sharing her expertise on Cooper and generously sending transcriptions of unpublished Cooper manuscripts. I thank Derrick Spires for directing me to James McCune Smith and insisting that Black writers knew Humboldt. For their encouragement and for listening to me air grievances, I thank Nelson Shake and Jeff Bilbro.

Several churches and spiritual mentors have enriched my family's time in Knoxville as well as my intellectual development at UTK. My family thanks the Laurel Church of Christ and the families there who loved us, welcomed us into your homes, grieved with us, and befriended our children. We also thank Graystone Presbyterian Church and Dr. Leslie Rust for theological stability and the respite of worship we needed during COVID-19. I thank Julian and Melanie Reese at InterVarsity graduate student ministry for coffee and conversation about theological books and the unique challenges of academia.

This project could not have been completed without the unwavering support and love of my parents and in-laws. I thank my parents for instilling a love of the church, books, and natural places. I thank my in-laws for keeping the Brevard homeplace, where our children could roam and I could walk the dog and watch the turkeys roost for the night. My most important thanks go to my wife, Heather, and our two children, one of whom was born in the middle of the writing. At the start of this project, we lost our precious Glory, but we have been blessed and, along with her, are being renewed "from one degree of glory to another." Heather, thank you for your many sacrifices and for reminding me of what is most important. This work is dedicated to you in love. Beatrice, tout mon cœur. Ezra, this is for you: THE END.

ABSTRACT

This dissertation offers a new interpretation of German naturalist-explorer Alexander von Humboldt's profound influence on nineteenth-century American literature and culture. Humboldt was a household name in mid-nineteenth-century America, often interchangeable with his most celebrated work, *Cosmos: A Sketch of the Physical Description of the Universe* (1845-1859). By demonstrating that *Cosmos* influenced how a range of scientists and literary writers represented the natural world, this project seeks to dispel the sense of historical inevitability that surrounds the midcentury with Charles Darwin's *Origin of Species* (1859) looming on the horizon. Although Humboldt's *Cosmos* did help move natural science into nonreligious territory, the US reception presents a more complex story than simply the eclipse of natural theology, the conventions of finding God in nature and reconciling new science with theism. This dissertation argues that mid-nineteenth-century writers reimagined Christian natural theologies for the emergent ecological world that *Cosmos* proposed. Drawing on new studies that emphasize the ways that the religious and secular are mutually constituted, it shows that scientists and literary writers recalibrated natural theologies through *Cosmos*'s terms and imagery, new historical-literary approaches to the Bible, and epistemic premises from their particular Christian denominations. The first chapter examines Humboldt's reception in US religious journals and influence on the writings of US scientists. Subsequent chapters analyze how literary writers Susan Fenimore Cooper, Henry David Thoreau, Herman Melville, and William Gilmore Simms integrated *Cosmos* and repurposed natural theologies for an ecological natural world. The Cooper and Thoreau chapters accentuate the theological background of an aesthetics of wonder. The *Cosmos* moment also gave rise to a new synthesis of Christian providentialism and US imperialism ideology, evident particularly in fictions of nature by Simms and Melville, despite

Humboldt's ardent disavowal of racist ethnologies. A coda proposes that Black writers James McCune Smith and Frederick Douglass employed Humboldtian science in a distinctively Black abolitionist natural theology. This dissertation's archive of emergent ecological literature will enrich how scholars understand the confluence of nineteenth-century science and religion.

TABLE OF CONTENTS

Introduction

Divine Cosmos: Emergent Ecology and Nineteenth-Century American Literature

In mid-nineteenth-century America, the German naturalist-explorer Alexander von Humboldt (1769-1859) was a household name, often interchangeable with his most celebrated work, *Cosmos: A Sketch of the Physical Description of the Universe* (1845-1859). The American polymath George Perkins Marsh, seeking to describe Humboldt's impact, noted that the study of geography was "no longer a fortuitous assemblage of independent facts and qualities, but its dry details have assumed an organic form and a human interest, and it has become at once a poetry and a philosophy."[1] This dissertation examines that convergence of science, aesthetics, and philosophy in Humboldt's US reception. It seeks to dispel the sense of historical inevitability that surrounds the midcentury, with Charles Darwin's *Origin of Species* (1859) looming on the horizon, by demonstrating that *Cosmos* influenced how a range of scientists and literary writers represented the natural world.

While early twentieth-century science historians tended to dismiss Humboldt as a Romantic naturalist with little salience to the modern scientific discipline, historians now recognize his influence on some of the most prominent, groundbreaking scientists of the nineteenth century, including Darwin, as well as his role in shaping a transatlantic network of professional natural science.[2] Humboldt's work was an important precursor to ecology, a twentieth-century discipline that aggregated the insights of biogeography, geological time, and climate science. Humboldt did not invent these subfields, but his writings normalized their

---

[1]. George Perkins Marsh, "The Study of Nature," *Christian Examiner* 58 (January 1860): 44.
[2]. Laura Dassow Walls has recounted the waxing and waning of Humboldt's reputation in *The Passage to Cosmos: Alexander von Humboldt and the Shaping of America* (Chicago: University of Chicago Press, 2009), ix–xi, 8–11, 18–22, 312–20.

insights through an expansive style that, even in translation, appealed both to general and more specialized audiences. Science historians consider Humboldt's 1807 *Essai sur le géographie des plantes* and its accompanying fold-out visual of Mt. Chimborazo's vegetation zones a "milestone in ecological thought linking climate and botany in systemic fashion."[3] In *Cosmos*, Humboldt broadened the *Essai*'s linking of climate and plant geography into a full-fledged *physical description of the universe*, as his subtitle put it. It was an ambitious project he left unfinished at his death, filling five extensive volumes with evocative statements about nature's interconnections and relationships and footnotes that logged empirical data from his global travels and vast correspondence with nineteenth-century scientists. *Cosmos* did cultural work for the English-speaking world that Americanist scholars are just now beginning to understand. Nineteenth-century Americans read Humboldt, practiced modes of "Humboldtian" science, and employed Humboldtian terms and concepts as they envisioned a Cosmos on earth, a dynamic ecological world.

If ecology is fundamentally the scientific study and philosophy of how nature's parts make organic wholes, *Cosmos* presaged this approach with a literary style that blended empirical observations with suggestive statements concerning nature's cosmic "chain of connection."[4]

---

[3]. Paul Warde, *The Invention of Sustainability: Nature and Destiny, c. 1500-1870* (New York: Cambridge University Press, 2018), 322.

[4]. Alexander von Humboldt, *Cosmos: A Sketch of a Physical Description of the Universe*, trans. E. C. Otté, vol. 1 (Baltimore: Johns Hopkins University Press, 1997), 23. I note here that Humboldt's writings have been made increasingly accessible as a result of new English editions and translations. Two English translations of *Cosmos* appeared quickly after its initial German publication in 1845. I tend to cite from E.C. Otté's nineteenth-century English translation, the first volume of which is available from Johns Hopkins University Press. See also Andrea Wulf's compact Everyman's Library edition of Humboldt's writings. The US scientists who read the *Essai* read it in French; the first English translation was recently published by the University of Chicago. See Alexander von Humboldt, *Alexander von Humboldt: Selected Writings*, ed. Andrea Wulf (New York, NY: Everyman's Library, 2018); Alexander von Humboldt and Aimé

Reviewers had faulted Humboldt's *Personal Narrative* (1814-1829) for never entirely reconciling an "uneasy tension between an objective narrative and a subjective narrator," but they marveled at *Cosmos*'s poetic declarations about nature's interrelationships that were supported with empirical fact.[5] Humboldt resisted the urge to write, on the one hand, an "encyclopedic aggregation" of the latest facts of science, and on the other, "a purely rational science of nature," a swipe at the *Naturphilosophie* school with which readers had sometimes associated him.[6] In *Cosmos*'s introduction, he included long footnotes of species' catalogues, precise elevations of mountains, mean temperatures, and longitude-latitude coordinates. Partial and yet systematic, an ultimately unfinished yet magnificent whole, *Cosmos* seemed to knit together the sciences in a unity that itself might be described as "ecological," right when the sciences were in danger of flying apart. Darwin declared that Humboldt had written "a grand coup d'oeil of the whole universe."[7]

Humboldt's very persona could also be characterized as ecological in the sense of gathering scientific sources and drawing together in-the-field experience. The cosmopolitan naturalist had climbed farther up Mt. Chimborazo than any known human being before him, almost 20,000 feet; had traced deep into the waterways of the Amazon and Orinoco river systems; had journeyed to the edge of volcanoes to measure temperatures and observe their geological features. As Laura Dassow Walls puts it, Humboldt immersed himself "in the

---

Bonpland, *Essay on the Geography of Plants*, ed. Stephen T. Jackson, trans. Sylvie Romanowski (Chicago: University of Chicago Press, 2009).

[5] Walls, *The Passage to Cosmos*, 42.

[6]. Humboldt, *Cosmos*, 1997, 1:49.

[7]. Charles Darwin, "Letter No. 1171 [to Edward Cresy]," May 1848, Darwin Correspondence Project, https://www.darwinproject.ac.uk/letter/DCP-LETT-1999.xml. For Humboldt's influence on Darwin, see Robert J. Richards, *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe* (Chicago: University of Chicago Press, 2002), 518–26.

particulars of nature . . . and the challenge of the unpredicted, the surprising, even the overwhelming."[8] Early efforts to recover Humboldt's influence on the English-speaking world such as the work of historian Susan Faye Cannon (who advanced the term "Humboldtian science") contended that Humboldt appealed to the era's sense of liberal progress achieved through technological developments, specifically with his use of modern scientific instruments and his desire to discover and represent nature's equilibrium through numerical harmonies.[9] This theory remains persuasive because it underscores Humboldt's unique place as a naturalist-explorer who stands between natural philosophy and modern natural science, a figure who sought to illuminate nature's interrelationships before the term *ecology* came into being.

A historical thread runs from Humboldt to the coinage of *ecology* and to the full-fledged twentieth-century ecological discipline. Ernest Haeckel, a German naturalist whom Humboldt supported and who is best known for his extensions of Darwin's evolutionary theory, coined *oecologie* in 1866 from the Greek *oikos*, or household, to describe the combination of biology, botany, and zoology, as well as physiology and morphology, in a new materialist science of interrelationships.[10] Although the late nineteenth and early twentieth-century scientists responsible for forming the scientific discipline tended to disavow Haeckel's more speculative, materialist ideas, when early ecologists discussed the discipline's historical development they

---

8. Walls, *The Passage to Cosmos*, 127.
9. See, for instance, Susan Faye Cannon, *Science in Culture: The Early Victorian Period* (New York: Dawson and Science History Publications, 1978); Nathan Reingold, "Paradigm Lost," in *The Sciences in the American Context: New Perspectives*, ed. Nathan Reingold (Washington, D.C.: Smithsonian Institute Press, 1979), 21–34; Margarita Bowen, *Empiricism and Geographical Thought: From Francis Bacon to Alexander von Humboldt* (New York: Cambridge University Press, 1981); Michael Dettelbach, "Humboldtian Science," in *Cultures of Natural History*, ed. Nicholas Jardine, James A. Secord, and E. C Spary (New York: Cambridge University Press, 1996), 287–304.
10. See Donald Worster, *Nature's Economy: A History of Ecological Ideas*, 2nd ed. (New York: Cambridge University Press, 1994), 192, 202–4.

acknowledged the early fields of plant geography and biogeography and cited Humboldt's *Essai*.[11] My qualifier *emergent*, however, turns the focus away from the scientific discipline of ecology per se to the midcentury moment when *Cosmos* and Humboldt-inspired scientists first designated a new perspective emphasizing nature's relations, connections, webs, and networks.

Humboldt's array of terms in *Cosmos* moved natural science into secular, nonreligious territory. He drew κόσμος, *kosmos*, from Pythagoras and Aristotle rather than the New Testament (often translated "world," as in "God so loved the world [*κόσμον*]" Jn. 3:16), the latter of which emphasized that the Christian God created and sustained the universe's beauty and order. Other evocative terms and turns of phrase bypassed conventional theistic understandings of nature for a more dynamic unity that Humboldt considered self-organizing: the "chain of connection," "one great whole," the "inextricable net-work of organism by turns developed and destroyed," "the assemblage of all created things in heaven and earth," the "mingled web of free and restricted natural forces."[12] In addition, a more specialized terminology populated the text and threatened to override the Linnaean view of species as enclosed entities. Humboldt referred to organic groups, zones and stations of habitation, and isothermal bands, a concept he helped invent that connected mean temperatures across oceans and lands. These holistic and more specialized terms did not so much challenge as simply ignore the dialectics of nature and grace, creation and Creator, and design and Designer that had shaped Latin Christian thought about the heavens and earth. Humboldt downplayed the religious tropes and pieties that often accompanied

---

[11]. See Malcolm Nicolson, "Humboldtian Plant Geography after Humboldt: The Link to Ecology," *The British Journal for the History of Science* 29, no. 3 (1996): 289–310; Stephen T. Jackson, "Introduction: Humboldt, Ecology, and the Cosmos," in *Essay on the Geography of Plants*, by Alexander von Humboldt and Aimé Bonpland, trans. Sylvie Romanowski (Chicago: University of Chicago Press, 2009), 1–46.

[12]. Humboldt, *Cosmos*, 1997, 1:23, 24, 41, 71, 79.

a view of nature as static, organisms as self-enclosed entities, and the earth as a young planet created only a few thousand years ago. Both the *Essai* and *Cosmos* avoided discussing God, Providence, and the tropes of "design" and divinely sustained order, though occasionally Humboldt used the open-ended terms "creation" and "breath of life."[13] *Cosmos* posited an earth composed of natural assemblages and relationships and a universe of vast spatial and temporal scales. It portrayed nature as dynamic and contingent, a world where forces seek harmonious balance and species and life groups sometimes die out so that nature can achieve that balance. When Humboldt did refer to Christianity or religion in general, he studied them as historical phenomena, praising their contributions to the philosophy of nature he was forwarding.[14]

Some US readers of *Cosmos* may have recalled Ralph Waldo Emerson's heretical use of *kosmos* in his *Nature* (1836), in which he rejected Christian theology in favor of more classical sources: "The ancient Greeks called the world κόσμος, beauty. Such is the constitution of all things, or such the plastic power of the human eye, that the primary forms, as the sky, the mountain, the tree, the animal, give us a delight *in and for themselves*."[15] Emerson's use predated Humboldt's (and we have no evidence that Humboldt read Emerson), but Emerson would go on to read *Cosmos* and declare Humboldt "one of those wonders of the world" that showed "the possibility of the human mind, the force and range of its faculties."[16] Emerson read *Cosmo*s as an achievement of mind, but other US readers focused on his science of the natural world. In both

---

[13]. Humboldt, 1:23, 24.
[14]. See in particular volume 2, which traced the philosophy of nature through its historical developments. Alexander von Humboldt, *Cosmos: A Sketch of a Physical Description of the Universe*, trans. E. C. Otté (New York: Harper, 1859), vol. 2.
[15]. Emphasis original. Ralph Waldo Emerson, *Ralph Waldo Emerson*, ed. Richard Poirier (New York: Oxford University Press, 1990), 8.
[16]. Ralph Waldo Emerson, *The Complete Works of Ralph Waldo Emerson* (Boston, MA: Houghton, Mifflin and Company, 1903), 11.457.

cases, the omission of the Deity was new insofar as many previously controversial scientific texts popular among English-speaking audiences, such as Charles Lyell's *Principles of Geology* (1830-33) and Robert Chambers's anonymously published *Vestiges of the Natural History of Creation* (1844), had at least attempted to reconcile their scientific theories with Christianity.[17] Humboldt never claimed to be carrying on a faith tradition, nor did he address the religious questions his approach evoked. Some British reviewers worried that Humboldt himself had atheistic or at least deistical leanings that marred the work.[18]

Yet *Cosmos*'s American reception presents a more complex story than simply the eclipse of natural theology, the tradition of finding God in nature and reconciling new science with theism. What is striking is how *infrequently* US readers labeled the book irreligious or atheistic. Humboldt's progressive scientific rhetoric gained currency among religious and nonreligious thinkers alike, especially among scientists and writers who knew theistic design and natural theological premises well. If Emerson's *kosmos* had suggested the revival of a classical, quasi-pagan view of the universe, for many US readers, Humboldt's *Cosmos* expanded Christian natural theology's tenets to a planetary scale, with its empirical apparatus and its network of

---

[17]. For how these English books reconciled religion and their new science in ways that at least some religious readers found persuasive, see James A. Secord, *Visions of Science: Books and Readers at the Dawn of the Victorian Age* (Chicago: University of Chicago Press, 2014), 160–65; James A. Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation* (Chicago: University of Chicago Press, 2000), 109–10.

[18]. For these British reviews, see Nicolaas A. Rupke, "Introduction to the 1997 Edition," in *Cosmos: A Sketch of a Physical Description of the Universe*, by Alexander von Humboldt, trans. E. C. Otté, vol. 1 (Baltimore: Johns Hopkins Press, 1997), xxiii–xxv. Humboldt's atheistic or deistical tendencies have not prevented religious historian Mark Stoll from suggesting that Humboldt "founded a characteristically Reformed style of science," citing Humboldt's Reformed background and connection the Reformed pastor Johann Reinhold Forster, father of his friend and fellow scientist-explorer George Forster. Mark Stoll, *Inherit the Holy Mountain: Religion and the Rise of American Environmentalism* (New York: Oxford University Press, 2015), 50.

professionals that included British and American scientists of theistic persuasions. For many Americans, Humboldt was no speculative idealist or poet imagining beyond his expertise; *Cosmos* arranged, in beautiful fashion, nature's scientific facts. The Christian integration of Humboldt helped normalize the geological age of earth, and later, among some thinkers, Darwin's natural selection theory and theories of distribution and species' migration. The initial result, however, was a science, philosophy, and literature that conveyed how nature's relationships made a Cosmos, that perceived God in the wondrous particulars, and that explored the political ramifications of the emerging ecological perspective.

This study argues that mid-nineteenth-century writers reimagined and recalibrated Christian natural theologies for the emergent ecological world that *Cosmos* proposed. What occurs in this transitional midcentury period, bookended approximately by the publication dates of *Cosmos*'s five volumes (1845-1859), is not the replacement of natural theology with Humboldtian, and then later, Darwinian natural science. Even in the case of writers who read *Cosmos* and are often thought to have rejected Christianity, Humboldt's reception belies a straightforward secularization narrative. In one sense, *Cosmos*'s US reception was secularizing: natural theology as synonymous with a clearly discernable, always benevolent plan in nature did recede in authority. But from another perspective, the *Cosmos*-inflected literature fulfilled natural theology's central aims: to provide empirical evidence of God's wondrous handiwork and to create an ecumenical rhetoric and aesthetics that testified to the divine Cosmos. This study unearths subtle transformations in natural theology and its literary development in nature writing and fictions of nature. Drawing on new studies that emphasize the ways that the religious and the secular are mutually constituted, it shows that scientists and literary writers reworked natural theologies through *Cosmos*'s terms and imagery, new historical-literary approaches to the Bible,

and epistemic premises from their particular Christian denominations. These writers often eschewed mechanistic, static views of nature's design--for example, Anglican natural theologian William Paley's infamous watch analogy and insistence that nature's "design" implied a "Designer")[19]--to develop a more intricately theological wonder toward life forms and interconnected natural processes.

Humboldt's scholarly recuperation often entails a secularization narrative in which science gradually but inevitably pulls natural theology out to sea, where it can no longer anchor belief or continue in good faith its practice of harmonizing science with theism. According to this view, Humboldt's innovation was to introduce the "possibility that human societies might draw the deepest kind of inspiration not just from the eternal heavens but from the ground beneath their feet."[20] Humboldt's science, that is, takes hold by diminishing other-worldly theologies. According to Walls, Humboldt's "Cosmos is entirely secular," and nineteenth-century readers erred when they conflated the work with the "ready-made view, . . . the universe as God's Creation."[21] Although Walls points out that nineteenth-century Americans did not perceive *Cosmos* and divine creation as necessarily incompatible, they assented to Humboldt's ecological premises that Walls's account suggests are inherently secular. For Ralph Bauer, Humboldt succeeded in translating "Christian millenarianism" into a "'tropicalist' hermeneutics of discovery that is underwritten by a modern secular and liberal teleology of scientific progress": in other words, a religion-science synthesis, although historically true, abetted imperialism and

---

[19]. William Paley, *Natural Theology* (Boston: Lincoln and Edmands, 1831), 10 ff.
[20]. Aaron Sachs, *The Humboldt Current: Nineteenth-Century Exploration and the Roots of American Environmentalism* (New York: Viking, 2006), 75.
[21]. Walls, *The Passage to Cosmos*, 236, 235.

should be rejected on moral grounds.[22] All of these narratives share an assumption that natural theology gives way to professional secular science as a result of Humboldt's *Cosmos*. These scholars nuance the more widely held understanding that *Origin* defeated natural theology, but they tend in turn to mythologize Humboldt as the secular prophet who heralds the new, religion-free age.

Regardless of whether scholars emphasize Humboldt or Darwin, the metanarrative of science's defeat of natural theology tends to distort what secularization is: the transformation of belief's *conditions* in what philosopher Charles Taylor calls in *A Secular Age* (2007) the "immanent frame."[23] Western secularization as religious change and proliferation did occur starting around 1500, as Taylor dates it, but sociological evidence suggests that wholesale religious decline applies only to some areas of Europe. Elsewhere, for example in the United States and South Korea, new forms of Christianity developed in response to perceived challenges to religious belief.[24] Taylor seeks to resist what he calls "subtraction stories" that purport to tell how "human beings have lost, or sloughed off, or liberated themselves from certain earlier, confining horizons." He claims that "Western modernity, including its secularity, is the fruit of new inventions, newly constructed self-understandings and related practices."[25] In the mid-

---

[22]. Ralph Bauer, "The Crucible of the Tropics: Alexander von Humboldt's Hermeneutics of Discovery," *The Eighteenth Century* 59, no. 2 (2018): 239.

[23]. Charles Taylor, *A Secular Age* (Cambridge, MA: Belknap Press of Harvard University Press, 2007), 542 ff.

[24]. José Casanova examines the various historical and sociological understandings of secularization in "The Secular, Secularizations, Secularisms," in *Rethinking Secularism*, ed. Craig J. Calhoun, Mark Juergensmeyer, and Jonathan VanAntwerpen (New York: Oxford University Press, 2011), 54–74. He notes that, "instead of being the norm, the historical process of secularization of European Latin Christendom is the only truly exceptional process," whereas countries like the United States and South Korea are "fully secular in the sense that they function within the same immanent frame and yet their populations are also at the same time conspicuously religious." 64, 58.

[25]. Taylor, *A Secular Age*, 22.

nineteenth century, the ecological was not so much a new investment in reality, finally perceived apart from religion, as some scholars have framed it, as an innovative shift toward identifying natural mechanisms and relationships to explain phenomena rather than the direct hand of God. Accordingly, mid-nineteenth-century America showcases less a defeat of metaphysics than a redescription and reorientation of metaphysical commitments: from the straightforwardly teleological to the ecological.

Since Taylor's *A Secular Age*, a literary studies subfield called postsecular studies has arisen that builds on Taylor's claims and is similarly invested in complicating the religious-secular binary.[26] The term postsecular has its own history and problems, but Lori Branch and Mark Knight have argued for its usefulness to signal the "multiform scholarship growing out of two decades of the 'religious turn' in the humanities."[27] The postsecular approach has been gaining traction particularly in nineteenth-century American cultural and literary studies, with and without the postsecular label.[28] Branch summarizes the postsecular's norms and revised secularization arc in the following way:

---

[26]. On how scholars since Taylor's *Secular Age* have evolved the field of postsecular studies he helped inspire, see Peter Coviello, *Make Yourselves Gods: Mormons and the Unfinished Business of American Secularism* (Chicago: University of Chicago Press, 2019), 23–47.

[27]. Lori Branch and Mark Knight, "Why the Postsecular Matters: Literary Studies and the Rise of the Novel," *Christianity & Literature* 67, no. 3 (2018): 494. A good history of the term postsecular is Lori Branch's "Postsecular Studies," in *The Routledge Companion to Literature and Religion*, ed. Mark Knight (New York: Routledge, 2016), 91–101.

[28]. See, for instance, the following monographs: Tracy Fessenden, *Culture and Redemption: Religion, the Secular, and American Literature* (Princeton, NJ: Princeton University Press, 2007); Molly McGarry, *Ghosts of Futures Past Spiritualism and the Cultural Politics of Nineteenth-Century America* (Berkeley: University of California Press, 2008); John Lardas Modern, *Secularism in Antebellum America* (Chicago: University of Chicago Press, 2011); Dawn Coleman, *Preaching and the Rise of the American Novel* (Columbus: Ohio State University Press, 2013); Jared Hickman, *Black Prometheus: Race and Radicalism in the Age of Atlantic Slavery* (New York: Oxford University Press, 2017); Emily Ogden, *Credulity: A Cultural History of US Mesmerism* (Chicago: The University of Chicago Press, 2018); Coviello, *Make Yourselves Gods*; Ashley C. Barnes, *Love and Depth in the American Novel: From Stowe*

> [I]n passing through and moving beyond an unreflective or "presumptive" secularism—a passage never fully complete and so perpetually future—postsecular studies opens up new understandings of religion and secularism as they have been mutually constituted and as they reconfigure themselves in culture. It also opens up new understandings of the cultural forms that mediate the secularism that emerges and the religiousness that remains in modernity.[29]

"The secularism that emerges" and "the religiousness that remains" fairly well captures the creative tension of Humboldtian-inflected natural theology, science, and literature. This project demonstrates that emergent ecology reflects an intellectual exchange in which the cosmos, seen as a primarily self-organizing, self-sustaining whole, continued to elicit a religious awe that many natural theologians, natural scientists, and literary writers perceived through the Bible and Christian premises of creation. In a period when *Cosmos*, the bestselling scientific text of the day, seemed to disregard longstanding theistic beliefs about nature, US writers reconfigured natural theologies to cohere with the ever-expanding, interconnected natural world. Because of its secular-religious overlaps, the *Cosmos* moment contains different possibilities that are not necessarily compatible with modern creationism or evolutionism.[30] Nineteenth-century religious readings of nature developed alongside and sometimes through the secular science that marked Humboldt. In engaging with *Cosmos*, US writers created new forms of religiosity both

---

to James (Charlottesville: University of Virginia Press, 2020); Ashley Reed, *Heaven's Interpreters: Women Writers and Religious Agency in Nineteenth-Century America* (Ithaca, NY: Cornell University Press, 2020).

[29]. Branch, "Postsecular Studies," 94.

[30]. Two good, effectively nuanced accounts of the late nineteenth-century, early twentieth-century rise of "creationism" are Ronald L. Numbers, *Darwinism Comes to America* (Cambridge, MA: Harvard University Press, 1998) and George M. Marsden, *Fundamentalism and American Culture*, 2nd ed. (New York: Oxford University Press, 2006).

connected to and exceeding the traditional theistic concept of nature as a statically unified, divine reality.

Natural theology is a term that has been used in a variety of ways. This study de-emphasizes its apologetic and epistemological meanings and focuses more on natural theology as the reflective act of finding God in nature and harmonizing new science with theism. As Jonathan Topham explains, the apologetic understanding of natural theology arose primarily through the discursive conventions of the British Royal Society and the conservative science culture it maintained to stem the tides of deism and atheism, often linked with French revolutionary thought. In times of religious conflict, British natural theology often served a "mediating function, providing a common core of religious truth about which all could agree."[31] The epistemological meaning referred to the attempt to make nature and reason, unaided by the revelations of Scripture, miracles, or other supernatural interventions, the main source of knowledge of God. Because of its sidelining of distinctively Christian doctrines, neo-orthodox Christians have tended to look askance on natural theology as continuous with the Enlightenment, following in the wake of Karl Barth's *Nein!* to Emil Brunner's defense of a limited natural theology in 1934.[32] For these neo-orthodox theologians, the natural theology epistemic that prioritized a natural revelation over Jesus Christ's particular Incarnation was

---

[31]. Jonathan R. Topham, "Natural Theology and the Sciences," in *The Cambridge Companion to Science and Religion*, ed. Peter Harrison (New York: Cambridge University Press, 2010), 62.
[32]. Barth was protesting the social use of natural theology in Nazi Germany's *Völkisch* movement that drew inspiration from German romanticism. Stanley Hauerwas has detailed this Barthian anti-natural-theology tradition and is probably the most prominent neo-orthodox defender of it, arguing that the Christian approach to knowledge should be grounded in the kerygmatic narratives of the church. See Stanley Hauerwas, *With the Grain of the Universe: The Church's Witness and Natural Theology* (Grand Rapids, MI: Baker Academic, 2013).

deeply misguided and historically consequential.[33] But as Topham points out, nineteenth-century scientists generally understood natural theology "to be of limited epistemological or apologetic value" and "allowed that the divine attributes could be made manifest in creation by the light of revelation as much as by reason."[34] That is to say, nineteenth-century scientists and writers of nature turned to a variety of sources, including nature itself, the Bible, and literary traditions, to represent the ecological cosmos. For them, natural theology was the attempt to perceive God in nature using both religious and scientific methodologies.

Paley's *Natural Theology* (1802), probably the best-known natural theology text, continued to exert influence, sometimes as an implicit foil to the more nuanced approaches to God in nature. Paley reflects the epistemological-apologetic use of natural theology in that he sought to erect a "rational foundation for the entire scheme of Christian theology," *and* a more rhetorical and cumulative use, stringing one example after another, "designed to appeal not just to the reason, but also to the imagination and the feelings of readers."[35] Darwin aimed to debunk Paley's so-called "argument from design" in *Origin*, yet he apparently admired his cumulative examples of functional adaptation; in a letter he said, "I do not think I hardly ever admired a book more than Paley's *Natural Theology*: I could almost formerly have said it by heart."[36] As

---

[33]. The Gifford lectures of the past thirty years or so have provided an occasion for many neo-orthodox Christians to reflect on the historical and theological consequences of Enlightenment-era natural theology. See, for instance, the following monographs that are revised Gifford lectures: Alasdair C. MacIntyre, *Three Rival Versions of Moral Enquiry: Encyclopedia, Genealogy, and Tradition* (Notre Dame: University of Notre Dame Press, 1990); John Milbank, *Theology and Social Theory: Beyond Secular Reason* (Cambridge, MA: Blackwell, 1991); Taylor, *A Secular Age*, esp. 225-234; Hauerwas, *With the Grain of the Universe*; N. T. Wright, *History and Eschatology: Jesus and the Promise of Natural Theology* (Waco, TX: Baylor University Press, 2019).
[34]. Topham, "Natural Theology and the Sciences," 71, 70.
[35]. Topham, 66, 67.
[36]. Charles Darwin, "Letter No. 2532 [to John Lubbock]," November 22, 1859, Darwin Correspondence Project, https://www.darwinproject.ac.uk/letter/DCP-LETT-2532.xml.

Colin Jager comments, *Natural Theology* is "a text that . . . continually court[s] the possibility of sinking under the weight of its own proliferating details"; "so many objects in the world, each of them bearing the marks of divine design, means that there is just *too much evidence* to fit into a single book."[37] The upshot, Jager explains, is that even Paley's text participates in secularity, understood as religious and scientific proliferation.

Similarly, the *literary* natural theologies that develop in this period remained indebted to the terms of design and the emphasis on adaptation, while also learning from Humboldt's nonreligious array of terms and ecological perspective. Literary natural theology was neither a full-blown theology of creation nor a strictly apologetic argument for God; rather, it negotiated the religious and secular, the conventional and groundbreaking. The *Cosmos* moment produced ecumenical texts of nature that incorporated a spectrum of theologies and scientific theories. While "theology of nature" or "doctrine of creation" may indicate more precisely that nature was the content rather than the epistemic source, this study is not concerned primarily with theological developments. This dissertation foregrounds the literary reimagining of tropes and discourses from Anglo-American traditions of science as they integrated *Cosmos*.

This literary natural theology yields two important tropes that receive fresh treatment: wonder and providentialism. The Cooper and Thoreau chapters accentuate the theological background of the aesthetics of wonder. Their nature writings best reflect the Humboldtian reconfiguration of natural theology that set certain precedents for nature writing going forward. Some ecocritics consider wonder a secular or nonreligious affect through which writers transcended their religious backgrounds and began to cultivate a modern secular ethics of

---

[37]. Colin Jager, *The Book of God: Secularization and Design in the Romantic Era* (Philadelphia: University of Pennsylvania Press, 2007), 109.

nature.[38] In mid-nineteenth-century America, however, at least some writers learned from Humboldtian science to arrive at a new theological wonder at the sheer complexity of existence. Wonder toward the world of nature, an objective reality, helped writers avoid a pure subjectivism, while their equally clear recognition that wonder is an affect, a subjective response to phenomena, led them to draw creatively from the biblical tradition and various sacred texts to imagine a divine Cosmos.

One prevalent theory about Humboldt's impact holds that he extended the objectifying tendencies of European science in a way that seemed morally progressive and liberal but in fact perpetuated the project of subsuming Indigenous lifeways into "natural knowledge."[39] This cultural history reading of Humboldt aligns well with US literary studies on race and imperialism. Yet Walls and Aaron Sachs have contended that, though Humboldt's writings certainly contributed to and influenced imperialistic projects, Humboldt was also the rare scientific figure who denounced slavery and polygenetic theories of race. While his writings did abet new exploring expeditions that would further endanger Indigenous peoples and their cultures, Humboldt was at the same time a proto-environmentalist, writing against deforestation and the forced removal of Indigenous peoples. Walls and Sachs have the difficult task of presenting Humboldt to US audiences—to whom he is still widely unknown—and reconciling their more nuanced understanding with the scholarship that paints Humboldt as "yet another

---

[38]. Jane Bennett, for instance, in her often-cited *The Enchantment of Modern Life* (2001), calls modern wonder and its corollary of enchantment "quasi-pagan," "push[ing] against a powerful and versatile Western tradition . . . that makes enchantment depend on a divine creator." Jane Bennett, *The Enchantment of Modern Life: Attachments, Crossings, and Ethics* (Princeton, NJ: Princeton University Press, 2001), 12.

[39]. See, for instance, Mary Louise Pratt, *Imperial Eyes: Travel Writing and Transculturation* (New York, NY: Routledge, 1992), 111–43; Bauer, "The Crucible of the Tropics: Alexander von Humboldt's Hermeneutics of Discovery."

imperialistic stooge."[40] They argue that Humboldt modeled a way to be ecological and, at the same time, politically enlightened on the issues of imperialism, slavery, and racial origins.

However, despite Humboldt's ardent disavowal of racist ethnologies, the *Cosmos* moment also saw a new conflation of Christian providentialism and imperialist ideology among some US scientists and writers. This project details how religion and science intertwined in nineteenth-century ideologies of racism and settler colonialism. While the nature writing genre provides rich evidence of Humboldt's influence, *ecological* works well to describe a narrative style of possessive providentialism that Humboldt inspired and that intervened in the political discourses of slavery and imperialism. The chapter on William Gilmore Simms and Herman Melville and coda on James McCune Smith and Frederick Douglass examine these racialized modes of natural theology. This *possessive providential ecology* impinged on US nature writing as well, as my integration of Indigenous histories in the Susan Fenimore Cooper and Henry David Thoreau chapters aims to demonstrate.

This study illustrates how US nature writing turned ecological through the merging of natural theologies and Humboldt's *Cosmos*. Walls's *The Passage to Cosmos* (2009) offers insightful but all-too-brief readings of nineteenth-century Humboldtian writers. On ecology and Christianity, John Gatta's *Making Nature Sacred: Literature, Religion, and Environment from the Puritans to the Present* (2004) shows how American nature writing reflects theologies of nature, but Gatta aims to be comprehensive rather than homing in on the nineteenth century.[41]

---

[40]. Walls, *The Passage to Cosmos*, x; Sachs, *The Humboldt Current*; on Humboldt as a proto-environmentalist, see also Richard Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens, and the Origins of Environmentalism, 1600-1860* (New York: Cambridge University Press, 1995).

[41]. John Gatta, *Making Nature Sacred: Literature, Religion, and Environment in America from the Puritans to the Present* (New York: Oxford University Press, 2004).

More recent literary ecocriticism has pushed the ecological concept back to eighteenth-century exploration writing, while other studies propose that slave narratives and testimonies represented enslaved individuals in a web of social, political, and natural assemblages that could be deemed ecological.[42] This study integrates these recent insights regarding histories of Indigenous and enslaved peoples but illuminates how these issues were often grounded in antebellum natural theology discourses, as, for example, in the debate over racial origins and biblical hermeneutics that gripped the midcentury US scientific community. The historical thread from Humboldt to ecology passed through religious discourses of wonder and providentialism that secured, expanded, and complicated the new interconnected approach to nature. This dissertation's archive of emergent ecological literature will enrich how scholars understand the confluence of nineteenth-century science and religion. Mid-nineteenth-century scientists and writers created an emergent ecology, the literary attributes of which continue to influence scientific thinking, theological reflections on nature, and nature writing today.

Chapter Overviews

Chapter 1, "Assembling a Wondrous Earth," analyzes Humboldt's reception in US religious periodicals and science writing. It begins by observing that while previous science history scholarship complicated the widespread assumption that scientists were moving in

---

[42]. See, for instance, Timothy Sweet, *American Georgics: Economy and Environment in Early American Literature* (Philadelphia: University of Pennsylvania Press, 2002); Jeffrey Myers, *Converging Stories: Race, Ecology, and Environmental Justice in American Literature* (Athens: University of Georgia Press, 2005); Susan Scott Parrish, *American Curiosity: Cultures of Natural History in the Colonial British Atlantic World* (Chapel Hill, NC: University of North Carolina Press, 2006); Ian Frederick Finseth, *Shades of Green: Visions of Nature in the Literature of American Slavery, 1770-1860* (Athens: University of Georgia Press, 2009); Monique Allewaert, *Ariel's Ecology: Plantations, Personhood, and Colonialism in the American Tropics* (Minneapolis: University of Minnesota Press, 2013); Cristin Ellis, *Antebellum Posthuman: Race and Materiality in the Mid-Nineteenth Century* (New York: Fordham University Press, 2018).

ateleological or agnostic directions and then Darwin's *Origin* delivered the final blow, the new scholarship on Humboldt tends to re-apply an outdated secularization narrative. By recalling the insights of previous scholarship, Americanists can begin to read the *Cosmos* moment as a unique blend of religion and science that does not map neatly onto modern creationism or evolutionism. Three central hubs for midcentury US science—Harvard, Yale, and Princeton —demonstrate how natural science was still intertwined with natural theology even as these colleges started to enhance their programs with specialists and advanced schools for scientific studies. I start with Harvard's culture of science, in particular mathematics professor Joseph Lovering's *Cosmos* review in the Boston Unitarian *Christian Examiner* and the scientific work of zoologist Louis Agassiz and botanist Asa Gray. Agassiz's polygenesis racial science has since been discredited, but many at the time considered him the American Humboldt. Gray internalized Humboldtian plant geography and served as Darwin's American exponent, writing articles that legitimated the emergent ecology with a renovated natural theology. I then turn to Yale, where natural theology professor and geologist Edward Hitchcock and *Journal of American Science and Arts* editor and geologist James Dwight Dana represented a middle way between adherence to Scripture and acceptance of a geologically old, developing Cosmos. Yale librarian Daniel Coit Gilman reviewed *Cosmos* for the Congregationalist *New Englander*, and Hitchcock's and Dana's writings reveal Humboldtian threads, terms, and premises. I conclude with Princeton, the *Cosmos* review in the *Biblical Repository and Princeton Review* and writings by theologian Charles Hodge, who held sway over science and religion topics among Presbyterians. I present the little-known fact that Hodge heard and was enthralled by Humboldt's original *Cosmos* lectures in Berlin, 1827-1828, while studying abroad. Hodge would go on to set the tone for a US doxological science, a science pursued for the glory of God, but he also incorporated

Humboldtian methods and themes. His 1874 question and answer, "What is Darwinism? It is atheism," marks an endpoint for the *Cosmos* moment, the fragmentation of religious emergent ecology and the beginning of the modern positivism initiated partly by Darwin's book.[43] A religious ecological poetics, which I outline at the chapter's end, developed from the science and aesthetics of Humboldt and influenced US nature writers.

Chapter 2, "Writing Sacred Natural History: Susan Fenimore Cooper's *Rural Hours*," illustrates how Cooper's 1850 daybook account of Cooperstown, New York, and nearby Lake Otsego reflects a revised natural theology that she created with Humboldtian science concepts and methods. Characterizing her work as *sacred natural history*, the chapter argues that *Rural Hours* integrates the epistemic balance of text, tradition, and reason of her Episcopalian denomination and seeks to perceive the Creator's works through Humboldtian empiricism. Cooper aspired to report facts about nature and to incorporate a wide range of new ideas from nineteenth-century natural science, including theories of biogeography, geological time, and species' competition, and she envisioned her local environment in the global context of the professional scientific network. In her mode of writing sacred natural history, she prioritizes communion with the growing network of Humboldtian naturalists; insists on fidelity to empirical fact and nature's complex holism and cultivates wonder, an undertheorized affective state in nineteenth-century nature writing. Understanding how Cooper shuttled between the religious and the secular, the sacred and mundane (hence the juxtaposition of *sacred* and *natural history*), the empirical and poetic, also prepares us to interpret her complex positionality as a woman in a largely male profession, a daughter of a famous novelist with elite access to literary networks,

[43]. Charles Hodge, *What Is Darwinism? And Other Writings on Science and Religion*, ed. Mark A. Noll and David N. Livingstone (Grand Rapids, MI: Baker Books, 1994), 156–57.

and a settler colonist at Cooperstown, where the Haudenosaunee people, including Mohawk and Oneida, had lived and continued to dwell on land near her home. I conclude with the evidence that Darwin and Thoreau read *Rural Hours* and learned from her scientific-theological insights. Her book makes a rich, subtle contribution to the era's questions about origins, distribution, and development, one that did not neglect the religious background of these inquiries into nature.

Chapter 3, "These Objects Make a World: Henry David Thoreau's Liberal Protestant Nature Writings," contends that Thoreau's writings participated in the midcentury transformation of natural theology among liberal Protestants. Some critics read *Walden* and Thoreau's post-*Walden* nature writings as presciently nonreligious, ateleological, and incipiently Darwinian, but this approach tends to obscure his vivid theological content. I argue that Thoreau's affiliations with liberal Protestant scientists, along with his own Unitarian upbringing and his more theistic leanings compared to some Transcendentalists, inform *Walden*, a liberal Protestant natural theology text. This chapter seeks to complement, not overthrow, the common understanding that Thoreau's friendship with Ralph Waldo Emerson and his reading of *Nature* (1836) set him on a course to write what many see as a paradigmatically Transcendentalist text, *Walden*. I trace Thoreau's Unitarian upbringing and Harvard education during a pivotal moment in liberal Protestant natural theology and highlight his continued affiliation with liberal Protestant scientists in the 1840s through the 1860s. His 1850s Journal indicates that he sought to "find God in nature."[44] The Journal conveys a Humboldtian vision of nature as deeply interconnected and relational, a perspective Thoreau links with his professed vocation to find God in nature through his biblically resonant use of the word *world* and his distinctions between the Creator and the

[44]. Henry David Thoreau, *Journal*, ed. John C. Broderick, The Writings of Henry D. Thoreau (Princeton, NJ: Princeton University Press, 1981), 4.55.

creation. *Walden* then envisions the natural world as knit together by love, a key theological and ethical value for Unitarians. *Walden* also integrates the Gospels, in particular the Sermon on the Mount, paralleling the Unitarian stress on Jesus' ethical example and teachings as the core of Christianity. The book's final chapters employ the analogy of resurrection to describe nature's cycles and patterns, reprising the ambivalence among Unitarians concerning whether Jesus' Resurrection was literal or figurative, bodily or spiritual. I conclude with an analysis of Thoreau's most distinctively ecological essay, "An Address on the Succession of Forest Trees" (1860), which modeled to an audience of Unitarians and liberal Protestants the various ways that natural theology might accord with ecological developments. His liberal Protestant nature writings from the 1850s to his death in 1862 emphasized that empirical precision and attunement to natural relationships were a means to discover God.

Chapter 4, "Possessive Providential Ecology: William Gilmore Simms's *The Cassique of Kiawah*," turns to US fictions of nature and proposes that a distinctly religious mode of ecology reflected natural theology's imperialistic valences while also suggesting new theological possibilities. The chapter reworks Black theologian Willie James Jennings's phrase "providence of possession" to describe how Humboldt inspired new views of nature as dynamic, contingent, and wondrously beautiful. This cosmic perspective was sometimes used to underwrite providential imperialistic history—ironically, to minimize the moral ambiguity that Humboldt's writings had helped initiate. The Southern proslavery novelist William Gilmore Simms, considered by many in the 1850s to be the nation's best living novelist, merged an imperialistic, allegedly providential scheme of history with a Humboldtian, potentially amoral view of the universe. In *The Cassique of Kiawah* (1859), a historical romance of the 1684 Battle of Kiawah near Charleston, South Carolina, Simms integrated Charleston's natural history traditions, which

included Louis Agassiz's racist, providential zoology. The novel's key terms of *provinces* and *Providence* resonated with Agassiz's religiously liberal, idiosyncratically Humboldtian natural science and the controversy it had stirred among Charleston naturalists. But at the same time, the novel's amoral registers of nature put a vivid question mark by the seemingly inevitable history of imperialism. This chapter sets Simms alongside his contemporary, Herman Melville, who also explored how the new science reshaped interpretations of Christian imperialist history. Melville's "Encantadas, or Enchanted Isles" (1854), provided Simms an example of how to depict nature's geological history, ecological interconnections, and numinous vitalism in an ekphrastic form that imitated Humboldt's scientific visuals. Although Simms and Melville alluded to the Bible and a divine presence in nature, both distrusted the tenet that nature manifested a benevolent design. However, in contrast to Melville's pessimism, Simms ultimately employed Humboldtian concepts to imagine a divine natural world that, while becoming more difficult to read as providentially designed and entirely benevolent, affirms and justifies the violent rise of Anglo-American society in the New World.

A coda, "The Black Abolitionist Natural Theology of James McCune Smith and Frederick Douglass," begins to address Humboldtian science's influence on Black writers. In McCune Smith's and Douglass's writings, natural theology remained in play even as these Black writers interrogated the conventional tenets of benevolent design, Euro-American anthropocentricism, and biblical literalism. Their work reflects a Black abolitionist natural theology inspired by Humboldtian biogeography and propelled by a liberatory biblical hermeneutic set against polygenetic interpretations of the Bible. The coda presents the evidence for a Humboldtian thread that runs through Smith's geographical science and Douglass's 1850s work resulting in *My Bondage and My Freedom* (1855). *My Bondage* eschews the racialized

valences of Anglo-American natural science in favor of a natural theology in which the human race develops from an original unity into social-ecological wholes. These Black writers reveal just how widespread the emergent ecological concept had become by the midcentury. The *Cosmos* moment in American literature provides complex theological reflections on nature's interconnections and humanity's relationship to nature.

Chapter 1

Assembling a Wondrous Earth

A previous generation of science historians showed how US natural scientists, in the decades before Charles Darwin's *Origin of Species* (1859), progressed toward many of Darwin's views regarding biogeography, the role of geological history in species' dispersal, and the question of what constituted a species. These historians sought to correct the assumption that Darwin's evolutionary theory effected a widespread faith crisis at the midcentury, emphasizing that many nineteenth-century scientists were religious and remained deeply religious after Darwin, and that it was only in the twentieth century that the conflict between "Creationists" and scientists took hold in the public imagination. For example, in his comprehensive research on all eighty American naturalists elected to the National Academy of Scientists between 1863 and the end of the century, Ronald L. Numbers "found no evidence . . . to suggest that a single one of these men severed his religious ties as a direct result of his encounter with Darwinism."[1] A new generation of science historians has sought to track the rise of ecology, not just evolutionary theory, and for this reason the central figure has shifted from Darwin to German naturalist-

[1]. Ronald L. Numbers, *Darwinism Comes to America* (Cambridge, MA: Harvard University Press, 1998), 41. See also Ronald L. Numbers, *The Creationists: From Scientific Creationism to Intelligent Design*, Expanded edition (Cambridge, MA: Harvard University Press, 2006); David N. Livingstone, D.G. Hart, and Mark A. Noll, eds., *Evangelicals and Science in Historical Perspective* (New York: Oxford University Press, 1999); Walter H. Conser, *God and the Natural World: Religion and Science in Antebellum America* (Columbia, SC: University of South Carolina Press, 1993); David C. Lindberg and Ronald L. Numbers, eds., *God and Nature: Historical Essays on the Encounter between Christianity and Science* (Berkeley: University of California Press, 1986); Herbert Hovenkamp, *Science and Religion in America, 1800-1860* (Philadelphia: University of Pennsylvania Press, 1978); Theodore Dwight Bozeman, *Protestants in an Age of Science: The Baconian Ideal and Ante-Bellum American Religious Thought* (Chapel Hill, NC: University of North Carolina Press, 1977); Ronald L. Numbers, *Creation by Natural Law: Laplace's Nebular Hypothesis in American Thought* (Seattle: University of Washington Press, 1977).

explorer Alexander von Humboldt, whose writings from the century's beginning to his *Cosmos* (1845-1859) at the midcentury inspired Americans to see nature as a series of interrelated zones of life comprising "one great whole."[2] With the new emphasis on Humboldt, however, some accounts of the period reinstate a religion-science divide, noting that Humboldt subtly omitted God from his science and thereby challenged the natural theology tenets of a designed universe.[3]

In this chapter I tell a different story, one that incorporates insights from the previous generation of scholarship to give religion its due in the reception of Humboldt. While Darwin attacked what he identified somewhat vaguely as adherents of "the ordinary view of creation" in *Origin*, Humboldt's Romantic dialectic of part and whole, for many Americans, corresponded with and expanded conventions of natural theology.[4] Influenced by Humboldt's ecological views, US scientists and theologians worked to recalibrate natural theology from focusing on singular objects of design (e.g., William Paley's watch found upon a heath) to portraying design in terms of the vast interrelated scheme of nature coming into being across geological time and through contingent relationships between natural objects. Aaron Sachs, Laura Dassow Walls, and Andrea Wulf have recently recovered the remarkable story of Humboldt's celebrity status in America, starting with his 1804 visit to the United States. Yet this new interest in Humboldt tends to neglect the role of religion in authorizing his emergent ecological science. In mid-nineteenth-century America, Humboldt inspired new renditions of natural theology that

---

[2]. Humboldt, *Cosmos*, 1997, 1:24.

[3]. See, for instance, Walls, *The Passage to Cosmos*, 235–36; Andrea Wulf, *The Invention of Nature: Alexander von Humboldt's New World* (New York: Alfred A. Knopf, 2015), 246; Sachs, *The Humboldt Current*, 75.

[4]. Charles Darwin, *On the Origin of Species*, ed. Jim Endersby (New York: Cambridge University Press, 2009), 305. Robert Richards usefully unpacks the broad concept of "Romantic science," noting how Humboldt integrated aspects of German natural philosophy and aesthetics in his empirical description of the Cosmos. Richards, *The Romantic Conception of Life*, 518–21.

corresponded with his Cosmos, an ecological world of natural relationships and interconnections. Colin Jager has characterized natural theology as a "characteristically *modern* phenomenon" in that it functioned as a "habit of mind, a way of intellectually addressing the materials of the world": it was "science, but with an accent."[5] Natural theology's ongoing discourses and even self-corrections prepared nineteenth-century Americans to participate in Humboldt's science, fusing religious tropes with empirical data in a vision of a natural whole.

The failure to account fully for natural theology in Humboldt's reception has affected how literary critics interpret nineteenth-century texts concerned with nature. While there is little reason to doubt that American writers imbibed and helped engender a "Humboldtian poetics" of nature, they did not separate this poetics from the tropes of design, allusions to the Bible, or acknowledgments of a Creator at work in nature.[6] Many literary writers were influenced by scientists who were themselves deeply religious and interpreted the emergent ecological science in religious ways. I seek to offer a corrective to the history of Humboldt in America and to the literary analysis of the ecological poetics that arose in his wake, both of which were facilitated by the long tradition in Christian thought that saw religion and science as mutually reinforcing.[7] Although Humboldt had omitted God from *Cosmos*, his "cosmic science" gave rise in nineteenth-century America to a surprisingly theistic and biblically resonant ecological poetics,

---

[5]. Jager, *The Book of God*, 4.
[6]. "Humboldtian poetics" is Walls's phrase in *The Passage to Cosmos*, 223–34.
[7]. For the long Christian tradition of seeing religion and science as intrinsicly compatible, see Peter Harrison, *The Territories of Science and Religion* (Chicago: The University of Chicago Press, 2015). Natural theology, however, could at times provoke controversy when it implied that humans could know God through reason alone, without the aid of revelation. On the varying attitudes toward natural theology in nineteenth-century British periodicals, see Jonathan R. Topham, "Science, Natural Theology, and the Practice of Christian Piety in Early-Nineteenth-Century Religious Magazines," in *Science Serialized: Representation of the Sciences in Nineteenth-Century Periodicals*, ed. G. N. Cantor and Sally Shuttleworth (Cambridge, MA: MIT Press, 2004), 37–66.

an aesthetic form of natural theology that helped usher in the part-wholes science that would eventually be called ecology.

Taking the 1845 publication of volume one of *Cosmos* as an approximate starting date, this chapter examines religious reviews of *Cosmos* and science writing by figures at three of the most vital and influential centers of nineteenth-century America science: Harvard, Yale, and Princeton. Rather than accepting secularization as a given, I seek to analyze a transformation in the conditions of belief.[8] Consequently, my approach entails close attention to the ways that Humboldt altered how American scientists understood and made use of their deeply held natural theology convictions. Clearly, these figures did not see themselves as undergoing a conversion to secularity, much less to unbelief. In fact, many of them thought that Humboldt's science avoided the trappings of the German school of *Naturphilosophie*, widely renounced in America as atheistic and unscientific. What occurs in this period is not so much a shift from religious to secular science as a change in methodology, from strict Linnaean taxonomy to a science of empirical interconnections in the natural world. I argue that in nineteenth-century America, Humboldt's natural science converged with religious views of nature to form an emergent ecological discourse. Humboldt's writings subtly shifted US natural theology discourse to engage with numinous interconnections rather than singular evidences of design.

American cultures of science welcomed Humboldt's "*cosmical*" science, as one reviewer put it, as "an assemblage of all the most important facts of science, arranged in such an order as

---

[8]. "Conditions of belief" is Charles Taylor's phrasing in *A Secular Age* (Cambridge, MA: Belknap Press of Harvard University Press, 2007), 3 ff. For more on this approach, often described as "postsecular" scholarship, see Dana Luciano, "Sacred Theories of Earth: Matters of Spirit in *The Soul of Things*," *American Literature* 86, no. 4 (2014): 713–36; Modern, *Secularism in Antebellum America*; Fessenden, *Culture and Redemption*; Talal Asad, *Formations of the Secular: Christianity, Islam, Modernity* (Stanford, CA: Stanford University Press, 2003).

to impress a picture of the world."[9] While the German school of *Naturphilosophie* "endeavors to evolve, *à priori*, an explanation of all phenomena," Humboldt binds "the parts of knowledge . . . in a whole" that is "self-continuant."[10] As Humboldt himself explained in his introduction, *"[T]he science of the Cosmos*" treats "a more widely-extended horizon . . . from the remotest nebulae to the climatic distribution of those delicate tissues of vegetable matter which spread a variegated covering over the surface of our rocks." Nineteenth-century Americans read this "assemblage of all things" as a map of creation, a means to coordinate the facts of the natural world into wholes sustained by God.[11] The reception of *Cosmos* in US religious periodicals offers some preliminary reasons for why Humboldt, of all scientists, initiated an emergent ecology in the US. But to examine how Humboldt impacted American science and culture also requires close attention to scientists and their technical use of Humboldtian concepts, including their prioritizing vegetational description over floristic taxonomy, landscape forms (often depicted in visuals) over isolated natural phenomena, and empirical holism over tropes of static unity.

I turn to science and natural theology writing by some of the most prominent midcentury US scientists, who were situated at colleges where they taught their students the harmony of religion and science. I begin at Harvard College, where zoologist Louis Agassiz and botanist Asa Gray were gaining international recognition for work in their respective fields. Remembered for their spirited debate over Darwin's *Origin*, Agassiz in his *Essay on Classification* (1857) and Gray in writings on North American flora (1857, 1859) and on Darwin (1860, 1861) subtly re-

---

[9]. James Davenport Whelpley, "Humboldt's Cosmos," *The American Review* 3, no. 6 (June 1846): 598.
[10]. Whelpley, 608–9.
[11]. Humboldt, *Cosmos*, 1997, 1:68.

worked their religious perspectives to accord with Humboldt's "plant geography," the theory of geographical distribution that Humboldt expanded for the entire web of nature in *Cosmos*. Next I focus on Yale College, where Benjamin Silliman had trained a generation of scientists in the 1830s and 1840s to be leaders in their fields and spokespersons for the religion and science synthesis. Two of his students, geologists James Dwight Dana and Edward Hitchcock, developed a religious aesthetic of Humboldtian science. Dana's writings on Mt. Shasta (1849) and his *Science and the Bible* (1856), and Hitchcock's *Religion of Geology and its Connected Sciences* (1851) reinvigorated natural theology for the dynamic and profoundly historical world they observed in their studies. Last, I reflect on the irony of Charles Hodge, the so-called "pope of Presbyterianism," soaking up Humboldt's original *Cosmos* lectures in Berlin, 1827-1828. At Princeton College, nineteenth-century America's bastion of conservative Presbyterian theology, Hodge promoted a doxological science, a science pursued for the glory of God, but one that would also implicitly involve Humboldtian methods and themes.

In nineteenth-century America, Humboldt enabled a religious ecological poetics more attuned to a universe of becoming rather than the taxonomically stable natural world of previous science and theology. I outline this religious ecological poetics as comprised of four main elements: an interest in the problem of geographical distribution and species dispersion, often signaled by the words *zones* and *provinces*; attention to geological time, stretching back beyond a literal six-days creation; a heightened emphasis on "facts" and empirical phenomena; and a de-centering of the human in nature, which sometimes opened onto environmental critiques of the human exploitation of the natural world. Literary writers both internalized and contributed to this poetics: they deftly integrated more specialized Humboldtian science and reworked the religious conventions of their culture and particular backgrounds. This chapter lays the groundwork for the

rich interplay of natural theology and emergent ecology in the midcentury period of American literature, when natural science was only nascently disciplinary and not divorced from general learnedness. In Humboldt's works, US writers discovered a vision of nature that sparked their theological imagination.

Harvard Science, Plant Geography, and the Natural Theologies of Agassiz and Gray

Harvard College by no means encompasses all of learned culture in nineteenth-century America, but it offers a good starting point for how more specialized, professional scientists received Humboldt and the ways that reception spread across the nation. Harvard by this point was Unitarian, an off-shoot of Congregationalism that sought to provide reasonable answers to debates over the errancy of Scripture, the Trinity, and the divinity of Christ.[12] For scientists Louis Agassiz and Asa Gray, however, even Harvard's Unitarianism was not binding. They felt free to experiment with their natural theological views in relation to the new science. Agassiz was never much of a church-goer, and Gray remained a devout Presbyterian, but both flourished in the more religiously liberal atmosphere to work out their emergent ecological theories of nature.

In general, Unitarians prided themselves on being receptive to new ideas, such as historical scholarship of the Bible, and so Humboldt's *Cosmos*, as well as the more technical theory of geographical distribution it expanded, found its way into the rooms of science at Cambridge. The *Cosmos* review in the *Christian Examiner*, the flagship journal of Boston Unitarianism, offers some initial insight as to why and how Humboldt had such an impact on Harvard theologians and scientists. Joseph Lovering, professor of mathematics at Harvard, wrote

[12]. See Daniel Walker Howe, *The Unitarian Conscience: Harvard Moral Philosophy, 1805-1861* (Cambridge, MA: Harvard University Press, 1970).

the review. He begins by comparing *a priori* science to Baconian methods of studying natural phenomena, and although he grants more legitimacy to the former than his Princeton or Yale contemporaries would be willing to grant, the Baconian way of science wins out over the "crude" cosmologies of Count Buffon and Pierre-Simon Laplace, which carried a whiff of materialism. Baconian science, or at least identifying with Baconian methods, held pride of place in nineteenth-century America, and, as a result, Humboldt's rejection of certain speculative views appealed to a variety of audiences.[13] According to Lovering, Humboldt may be indebted to certain German speculative views, but unlike a Schelling or a Goethe, he is aware of the empirical "difficulty" of assembling a Cosmos. *Cosmos*'s introduction serves to "disarm[s] the criticism of those who expect from it the complete philosophy of nature," for Humboldt rejects "perilous abstractions of a purely rational science of nature" and moves from grand statements to actual observations and facts of nature.[14]

Yet Humboldt's range of learning is hardly believable, says Lovering. In just a few pages of description, Humboldt traverses entire swaths of science: "nothing short of a life lengthened out to fourscore years . . . would have sufficed for gathering the materials requisite for a review of nature as at present interpreted by human science."[15] Lovering is most interested in Humboldt's knowledge of astronomy, and while Lovering comments that discoveries in this field have been made since *Cosmos*'s publication, the "variety of subjects discussed and the vast number of facts" furnish to the American reader a "valuable magazine of information." Humboldt thus presents the most relevant, cutting-edge findings of science in a more accessible

---

[13]. For the various ways that Americans appropriated "Baconism," see Bozeman, *Protestants in an Age of Science*.
[14]. Joseph Lovering, "Baron Humboldt's Cosmos," *Christian Examiner* 48, no. 1 (1850): 61, 63.
[15]. Lovering, 64–65.

style compared to other German or French works of science translated into English.[16] Lovering credits this combination of breadth and accessibility for making *Cosmos* a bestseller among experts and lay readers alike.

Most of all, Lovering claims, *Cosmos* succeeds in "teaching us the wonderful play of forces, organic and inorganic, material and spiritual, which have guided the destinies of this planet and its inhabitants from the creation to the present hour." For Lovering and his primarily Unitarian audience, these forces "originate in God and dwell in God."[17] Physical science delineates their "play" but can never fully explain their origin; the latter Lovering believes is for the reasonable metaphysician. Yet Lovering's emphasis on "forces" raises the specter of *Vestiges*, a work widely condemned by US scientists, and here one glimpses Lovering's more liberal perspective and where it leads him in his evaluation of Humboldt. Lovering actually prefers *Vestiges* "with all the errors and assumptions in which it abounds" over *Cosmos,* because the former has a kind of "charm" and the ability to awaken "high ideas." *Cosmos*, at times, is a sprawling work that lacks "a leading idea." It is "essentially without method."[18]

Lovering's minor criticism serves to indicate how he thinks reasonable scientists should use *Cosmos* even as they compensate for some of its shortcomings. Though Humboldt himself did not refer to religion, American thinkers can fill the gap and ensure that religion stands as the

---

[16]. Lovering, 72.
[17]. Lovering, 65, 55. Some historians of science have described Humboldt's contribution to modern science as a new emphasis on forces. Humboldt's "dynamic equilibrium of forces" was not "derived from a mathematically demonstrable balance of forces, like Laplace's self-regulating world system, but from the sheer number of forces acting simultaneously and varying globally; the lawfulness of Humboldt's 'Nature' was born of 'infinity' and complexity, not of mechanism." Humboldt's mean values and isothermal lines appealed to the layman's intuition of nature's constancy across the globe: "Sober, accurate, and global measurement of the proper quantities led to recognition of unity and order, 'analogies' between distant climates, vegetations, topographies, even cultures." Dettelbach, "Humboldtian Science," 290–91, 299.
[18]. Lovering, "Baron Humboldt's Cosmos," 84, 83.

"leading idea." Lovering ends with a final point of criticism that illustrates how US scientists sometimes resolved the problem of Humboldt and religion. *Cosmos* contains a "slur" upon the English custom of Sabbath: Humboldt notes that a magnetic storm in Van Diemen's Land (Tasmania) was not fully measured because it occurred on a Sunday. Lovering suggests that Humboldt himself could benefit from the practice of Sabbath, not necessarily because of its religious significance but to pause from his relentless drive for knowledge. If Humboldt kept the Sabbath, Lovering says he would be appropriately humbled by "the most familiar exhibitions of nature" and more aware of his ignorance regarding their origins. He might also attend to nature's more common wonders: "the growth of the grass, the ripening of the harvests, the visitations of disease, the birth of a child, and the operations of the mind." Lovering, then, is perhaps less concerned with Humboldt's lack of religious piety than he is with the slight he detects toward the democratic impulses of nature. He implies that US scientists, chiefly religious and democratic as they are, will thus supply corrections to Humboldt even as they reap the benefits of his cosmic science of natural forces and empirical interconnection.[19]

In their individual ways, Agassiz and Gray certainly benefited from *Cosmos*. They appropriated Humboldt's science for their projects that made religion, in the end, the "leading idea." When Agassiz was first starting out in his career, Humboldt assisted him financially on multiple occasions and even persuaded the Prussian monarchy to grant him money for a trip to the United States, where he settled permanently.[20] While in Europe, Agassiz had been influenced by the French naturalist Baron Cuvier, who helped him move beyond Lorenz Oken's *Naturphilosophie*, which sought to explain all natural phenomena through fundamental types, the

---

[19]. Lovering, 86, 84.
[20]. Edward Lurie, *Louis Agassiz: A Life in Science* (Chicago: University of Chicago Press, 1960), 64–67, 114.

Ur-plants and Ur-animals, and taught him instead the skills and the value of a rigorous empiricism.[21] At the same time, Agassiz always employed the general terms of natural theology. When he stepped ashore in America and gave the Lowell lectures in Boston during the winter of 1846 and 1847, he received a celebrity's welcome as a Continental savant, a Humboldtian disciple who also spoke frequently of an Almighty Intellect.

Agassiz is best known among Americanists for his abhorrent polygenesis theory of racial origins. His essay in J.C. Nott's and George R. Gliddon's *Types of Mankind* (1854), essays compiled in memory of the infamous Samuel Morton, is exhibit A in his legacy of racist science.[22] But when Agassiz first arrived in America in 1846, he was considered Humboldt's American protégé. His theory of racial origins, at least initially, was not grounded in the study of craniums, as Samuel Morton had done, but in an iteration of Humboldt's plant geography. Agassiz particularly appealed to US audiences because he seemed to balance a Platonic natural theology with cutting-edge Humboldtian science.

Agassiz's Humboldtian science and Romantic natural theology comes together most vividly in his *Essay on Classification* (1857). He contends for special creationism, a theory of

---

[21]. Cuvier was a catastrophist who believed there were no connections between species of different geological epochs. His system of classification hinged on rigid separate creations, and Agassiz would extend Cuvier's work to develop his views on racial origins. In *The Order of Things*, Michel Foucault posited Cuvier as the major transition figure between Linnaeus and Darwin. For Foucault, even Cuvier's catastrophism represented a shift in biological thought. In Cuvier "life" becomes a force that destroys the conventionally stable sense of being: "from Cuvier onward, living beings escape . . . the general laws of being; biological being becomes regional and autonomous life, on the confines of being, is what is exterior to it, and also, at the same time, what manifests itself within it." Foucault traces how natural history moved beyond a "grid of denominations" to emphasize the flux of nature, an "untamed ontology." Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Pantheon Books, 1970), 273, 160, 278.

[22]. Louis Agassiz, "Of the Natural Provinces of the Animal World and Their Relation to the Different Types of Man," in *Types of Mankind*, ed. Josiah Clark Nott and George R. Gliddon (Philadelphia: Lippincott, Grambo & Co., 1854), lviii–lxxviii.

differentiated creation epochs and separate points of origins for the races, and he conveys a Divine Mind that created all things to live in particular locales. The *Essay* affirms Humboldt's empiricism over the attempt to locate organic laws, say, in the form of a leaf (e.g., Goethe's *Metamorphosis of Plants*), and lists his *Essai sur la géographie des plantes* (1807) as a supporting reference.[23] Yet for Agassiz, the geographical interconnections that Humboldt had emphasized can only be accounted for by the working of a Mind, a Supreme Intellect that created all things in their particular provinces. Humboldt himself never affirmed special creationism, but Agassiz believed he was continuing the Humboldtian legacy by emphasizing the role of connecting links between organisms and their environments. Nature is not a "working of blind forces"; it is the "creation of a reflective mind"—a mind that, though divine in Agassiz's view, appears noticeably similar to the scientific mind described in *Cosmos*, a mind that considers nature *"rationally*" and submits the data to "a process of thought" to realize "one great whole animated by the breath of life."[24]

Agassiz's natural theology was decisively Romantic, keyed to Humboldt and the mind-nature symbiosis in *Cosmos*. In Agassiz's scheme, God was an Almighty Consciousness rather than the God of Abraham or the God of Christ, neither of which he references in his natural theology. Agassiz never delved into the particular claims of Judaism and Christianity that said God was not just a Mind but a covenant God with Israel, particular details with moral implications that might have thrown a wrench in his special creationism.[25] Brad Gregory

---

[23]. Louis Agassiz, *Essay on Classification* (Cambridge, MA: Belknap Press of Harvard University Press, 1962), 16.
[24]. Agassiz, 24; Humboldt, *Cosmos*, 1997, 1:24.
[25]. See Agassiz, "Of the Natural Provinces of the Animal World and Their Relation to the Different Types of Man." As Ronald L. Numbers points out, in some quarters Agassiz was labeled an "infidel" for mocking the account of the flood in Genesis and dismissing the story of

summarizes Romantic theism, to which Agassiz subscribed, in the following way: "the subjective vision of the autonomous individual within the sublime whole of the cosmos," a theism with which "men such as Humboldt and his brother, the naturalist explorer, Alexander, had replaced creation understood in traditional Christian terms."[26] Their broadly Romantic lexicon left their theories amenable to the likes of Agassiz to make his case for species development within a scheme of Mind directing special creationism. Agassiz wowed audiences on the lecture circuit by tracing the workings of this Divine Intelligence across historical epochs. When he turned to the subject of racial origins, his Humboldtian science unfolded in a controversial theory of separate species. He distorted Humboldt's explicit disavowals of racial science but furthered the quasi-religious vocation of the scientist suggested in *Cosmos*.[27]

Despite Agassiz's racist science and Platonic overtones, he nonetheless contributed to the emergent ecological discourse in America. The *Essay* showcases his vast zoological knowledge and application of Humboldt's "zones of habitation" to the field of zoology that had never particularly interested Humboldt.[28] Agassiz explains that fauna are unequally distributed across the globe, with different scales required to consider their range: "zoological realms, zoological provinces, zoological counties, zoological fields, as it were." He laments the lack of empirical data concerning animal ranges: were scientists able to ascertain their ranges as accurately as French botanist Alphonse de Candolle had with plants, "we might begin a new era in Zoology."[29] He observes that naturalists often neglect to describe the environmental circumstances under

---

Adam and Eve as an "absurdity." A nominal Unitarian at best, he "scarcely fits the mold of a Bible-thumping creationist." Numbers, *Darwinism Comes to America*, 28.

[26]. Brad S. Gregory, *The Unintended Reformation: How a Religious Revolution Secularized Society* (Cambridge, MA: Belknap Press of Harvard University Press, 2012), 350.

[27]. For Humboldt on race, see *Cosmos*, 1997, 1:351–59.

[28]. Humboldt, 1:61.

[29]. Agassiz, *Essay on Classification*, 37–38.

which animals arose. He claims that if they did analyze them, one of the strongest arguments in favor of the controlling influence of physical agents could be eradicated forever. He gives the example of the blind fish, an example that Darwin responds to directly in *Origin*.[30] For Agassiz, the blind fish, *Amblyopsis spelaeus*, was perfectly created for Mammoth Cave in Kentucky. The scientist who studies environmental circumstances must come to the conclusion that this fish was created in and for the location where it now exists. Any semblance of a rudimentary eye merely proves that the Almighty wanted us to recognize the "great type" of which the fish is a part.[31] Agassiz's theory of primordial types effectively allows him to collapse space and time in a scheme of geographical distribution. The range of the fish was directly circumscribed by its being originally created for the cave, and the scientist should aim to discover these evidences of limited range that reveal a Mind working to create harmony between creatures and their environments.

Agassiz epitomizes the novelty of a natural theology grounded in the science of geographical distribution. In effect, he immanentizes the design argument and shows that types are deeply embedded in their surroundings. He explains that in contrast to older varieties of natural theology that stressed "adaptation of means to ends," as had been done in the *Bridgewater Treatises* (1830-1833), his natural theology is based on "the natural action of objects upon each other," which "result[s] in a final fitness of the universe and thus produce[s] an harmonious whole." The Divine Intelligence instituted cogent links between creature to

---

[30]. Darwin deftly chided Agassiz: "Far from feeling any surprise that some of the cave-animals should be very anomalous, as Agassiz has remarked in regard to the blind fish, . . . I am only surprised that more wrecks of ancient life have not been preserved, owing to the less severe competition to which the inhabitants of these dark abodes will probably have been exposed." Darwin, *On the Origin of Species,* 115.

[31]. Agassiz, *Essay on Classification*, 17.

creature and creature to environment. This approach to natural theology is more empirical, Agassiz says, for it looks for the "intelligent and intelligible connection between the facts of nature as direct proof of the existence of a thinking God."[32] He assumes that when the scientist discovers those connections, he is fulfilling the *imago Dei*. The scientist realizes humankind's cosmic power of synecdoche: "if man himself is part and parcel of the whole system, how could this system have been called into existence if there does not exist One Supreme Intelligence as the Author of all things?"[33] Humanity thus achieves a kind of divinity in tracing God in the interrelated details, a point perhaps implied in Humboldt's science but never stated forthrightly in *Cosmos*. Agassiz transforms Humboldt's vision of interconnected phenomena into a cosmic scheme of natural theology inflected by Platonism that appealed to religious audiences in the United States. His theories made an impact because he incorporated Humboldt's plant geography in a scheme of Romantic natural theology that felt broad enough to avoid the doctrinal disputes between individual Christian denominations.

Harvard botanist Gray disagreed with Agassiz on many points, but he also merged Humboldtian science and natural theology. At times, Americanists tell the story of Gray as an uneasy compromise between evolution and theism, but this story in which evolution wins out both neglects the Humboldtian influence and obscures how religion informed the terms of the emergent ecological discourse.[34] Although some scholars know that Gray provided essential

---

[32]. Agassiz, 11–12.
[33]. Agassiz, 21.
[34]. The best account of Gray's impact on Darwin and vice versa remains Hunter Dupree's biography, but Dupree assumes a secularization thesis that prevents him seeing how religion, albeit in more immanent forms, continued to shape science: "Gray's position [of a middle place between science and religion] became harder and harder to maintain as the combatants nailed their flags to the mast." A. Hunter Dupree, *Asa Gray, 1810-1888* (Cambridge, MA: Belknap Press of Harvard University Press, 1959), 281–82. For a more recent example of portraying Gray as a noble but doomed thinker, see Randall Fuller: "[T]he simple truth was that he found it

comparative data to Darwin for his *Origin*, and that Gray's essays in the *Atlantic Monthly* helped soften the blow of Darwin's ideas, the assumption is often that Gray was merely a connecting link to a Darwinian future. This interpretation fails to account for how Gray was impacted by Humboldtian science, in particular by Humboldt's plant geography, or why the Presbyterian Gray valued *Cosmos* when he had previously denounced theories of development such as those proposed by Jean Baptist de Monet de Lamarck and Chambers's *Vestiges of the Natural History of Creation* (1844).

Examining Gray in his own right rather than using him as a stepping stone to Darwin reveals how Humboldt's plant geography to be essential in the development of his thought. In the field of botany, Gray begins where Humboldt had left off a generation before. At the beginning of the nineteenth century, Humboldt had considered plant geography and the influence of climate on life zones, contending that botanists should study "the character of vegetation" and the chain of causes and effects over botanical facts in isolation.[35] In the mid-1850s, Gray read Joseph Hooker's introduction to *Flora Indica* (1855) and Candolle's *Géographie botanique raisonnée* (1855), both works deeply influenced by Humboldt's plant geography, and Gray was inspired by them to embark on his own comparative study of specimens that had been sent to him from the North Pacific Exploring Expedition. Gray's first paper on these specimens, published in the *American Journal of Science* (1856), offered a preview of Darwin's ideas by suggesting that flora in North America and Japan were derived from common ancestry. The wide acceptance of

---

impossible to live in the world Darwin had imagined: a world of chance, and world that did not required a God to operate. In this way, he was closer to Louis Agassiz than he cared to admit." Randall Fuller, *The Book That Changed America: How Darwin's Theory of Evolution Ignited a Nation* (New York: Viking, 2017), 216. Understanding Gray's Humboldtian plant geography and his particular kind of theism lessens this sense of historical inevitability.

[35]. Humboldt and Bonpland, *Essay on the Geography of Plants*, 73.

geological science by the 1850s allowed Gray to speculate on a land bridge between the continents and to propose that disruptive climate periods contributed to shifts in species' habitats.[36] When Darwin read Gray's "Statistics," he wrote to the Harvard botanist, "Your facts on northern range have indeed astonished me; they will be preeminently useful for my especial purpose."[37]

Gray was a nominalist in the sense that he thought that identifying species was a less than perfect science. Toward the end of the longer version of his statistical analysis of North American flora (1857), he turns to vegetational forms over Linnaean taxonomies to describe how organisms interact with the environments. In this groundbreaking essay—one of the first to use statistics in the study of geographical distribution—Gray concludes by delineating the particular "physiognomy of our vegetation," the trees of "social growth" that are most "striking and important" in North America: the *Pinus Strobus* (white pine) of the Northern States, the "*Taxodium* of our Southern 'cypress' swamps, the long-leaved Pine" that grows in the lower country of southeastern Virginia to the Gulf of Mexico, the *Arbor Vitae* of the cold swamps of the North and Canada.[38] And in suggesting that these species had spread from various parts of the globe and adapted to different habitats, Gray directly contends with the Agassizian idea that "each species probably originated in as many individuals, and covering from the first as large an area as it subsequently possessed."[39] For Gray, the facts pointed to explanations of unity and development, and he pursued alternative theories by gathering flora into wholes, aesthetically

---

[36]. Dupree, *Asa Gray, 1810-1888*, 250–52.
[37]. Charles Darwin, "Letter No. 1999," November 24, 1856, Darwin Correspondence Project, https://www.darwinproject.ac.uk/letter/DCP-LETT-1999.xml.
[38]. Asa Gray, "Statistics of the Flora of the Northern United States," *American Journal of Science and Arts* 23, no. 69 (May 1857): 402.
[39]. Gray, 389.

related groups that were native to particular environments. According to Robert J. Richards, Humboldt wanted scientists to use the "assemblages" of geographical distribution to move beyond static taxonomy, and Darwin was deeply influenced by his aesthetic assemblages.[40] Grouping species into Humboldtian forms, Gray similarly strengthened the claim of a single center of creation from which species dispersed to their current locations.

Gray corresponded with Darwin and grasped the theoretical problems of plant geography and its implications for conventional views of natural development. Consequently, he was well suited to defend *Origin* as "not inconsistent with natural theology," the subtitle of one of his 1860 articles for the *Atlantic Monthly*. These articles reveal Gray reworking natural theology for the Humboldtian scheme of a Cosmos. Taking aim at Agassiz's special creationism, Gray explains that the forces directing the natural world may be "blind and unintelligent," but they nonetheless work to bring about order and design, a view Gray predicts Agassiz will be quick to label a strain of materialism.[41] Agassiz had indeed argued that the tightly interwoven connections in nature actually indicate that there cannot be material links alone: there *must* be a Divine Intellect who directed natural objects to their particular stations, because the connections were much too complex. To fend off Agassiz's objection, Gray channels Humboldt. For Gray, the whole issue comes down to whether one perceives a Cosmos operating by chance or design: "To us, a fortuitous Cosmos is simply inconceivable. The alternative is a designed Cosmos."[42] If Humboldt's Cosmos seems to operate by blind forces, Gray's religious perspective ensures that the working of these forces tends toward design, not in the sense of singular evidences but of

---

[40]. Richards, *The Romantic Conception of Life*, 520–21.
[41]. Asa Gray, *Darwiniana: Essays and Reviews Pertaining to Darwinism* (New York: D. Appleton and Company, 1876), 153.
[42]. Gray, 153.

empirical, complex interconnections. For Gray's view of design, Genesis 1:12 proved essential: "And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind," a verse that for Gray illustrates a self-propagating natural world after the originating moment of creation.[43]

One can argue that Gray and Agassiz were both simply naive or willfully ignorant toward the ateleological possibilities of Humboldt's work, which Darwin drew out in *Origin,* but a more precise way to study this period is to observe subtle transformations in the conditions of belief. Inspired by *Cosmos*, Agassiz and Gray altered how to perceive the divine in nature, and their natural theology innovations informed the emergent ecological discourse in nineteenth-century America. Their forms of natural theology opened onto a universe of becoming. Although Agassiz portrays a more static world of types and geographical boundaries, his use of Humboldt shifts natural theology toward a focus on geological and ecological connections, a world of interrelationships that scientists discover. Gray, meanwhile, envisions an even more contingent earth comprised of empirical links and species that continue shifting across geological epochs. Emergent ecology, as articulated by these two Harvard scientists, combines Humboldtian science with flexible forms of theism. Lovering noted that Humboldt's *Cosmos* signaled "the chaos, not of ignorance, but of profuse knowledge."[44] Agassiz on the lecture circuit and Gray in the pages of the *Atlantic Monthly* harmonized religion and science on a new planetary scale, in the accumulating knowledge of empirical unity across geological time and geographical regions.

---

[43]. Gray, 131.
[44]. Paley, *Natural Theology*, 10; Lovering, "Baron Humboldt's Cosmos," 59.

Yale College, Geology, and the Ecological Sensibility of Dana and Hitchcock

Since its origins in the eighteenth century, geological science had been challenging the literal 6000-year-old earth espoused by some scriptural geologists. By the nineteenth century, however, Humboldt could almost take as a given a geologically ancient earth. At Yale College, Benjamin Silliman had been teaching his students since at least the 1830s to read the earth's history beyond the scriptural date, and so his students were well prepared for the geological premises of *Cosmos*. Silliman got his start as Yale's chemistry and natural history professor through an appointment by Timothy Dwight in 1802. While Silliman himself made few groundbreaking contributions to science, he edited the *American Journal of Science and Arts*, the premier journal for scientific findings in America, until his student James Dwight Dana took the reins in the late 1840s, and he lectured across the nation promoting science as a pious enterprise.[45] Silliman harmonized geology with the Scriptural record through a long-day theory of creation: a day might be a thousand years in the mind of God, and so the Genesis account should not be taken as literal scientific truth. He was retired when *Cosmos* began to permeate the scientific community, but his influence continued through Dana's and Edward Hitchcock's syntheses of religion, geology, and the cosmic science of Humboldt. For the Yale community, a Congregationalist middle ground between Unitarians and more conservative Presbyterians, *Cosmos* powerfully distilled and enriched new developments in religious geology. Dana and Hitchcock in particular progressed beyond the study of earth's strata to propose religious-ecological views of nature and geological history.

---

[45]. See John C. Greene, "Protestantism, Science, and American Enterprise: Benjamin Silliman's Moral Universe," in *Benjamin Silliman and His Circle: Studies on the Influence of Benjamin Silliman on Science in America : Prepared in Honor of Elizabeth H. Thomson*, ed. Leonard G Wilson (New York: Science History Publications, 1979), 11–27.

By at least the late 1840s, Yale scientists were integrating what was called the "new geography," new in the sense of accounting for earth's history and development. The *Cosmos* review in the *New Englander*, the journal of Yale Congregationalism later named the *Yale Review*, contextualized Humboldt's achievement in this new geography and used the opportunity to evaluate the scientific theories Yale scientists were promoting. Yale librarian Daniel Coit Gilman claims that the new geography is not opposed to religion, and he works within the context of Yale scientists' commitment to Congregationalism, a form of Christianity squarely in the Reformed tradition but open to the decisions of local polity. As Gilman explains, Yale scientists brought their geology under the rubric of the new geography and created new forms of natural theology for this world of interconnection.

In his review, Gilman discusses *Cosmos*, Carl Ritter's *Erdkunde* (Earth Science) (1817), and Arnold Guyot's *Earth and Man* (1849), but Humboldt rises above the two others as the most cosmopolitan and accessible, and, finally, the most influential. Gilman says that "in separate departments, the book and its writer have been surpassed," but "taken all in all, [*Cosmos*] has never been equaled." "Ask any school-boy who Humboldt is, and the answer will be given." Ritter is a "man of books" who "lived mostly in his study and lecture room," but Humboldt is a man of the world. Guyot is "imbued with the spirit" of both thinkers, but he is too narrowly focused on the relationship between man and nature.[46] Taken together, these thinkers establish a "new geography": whereas the old focused on "facts independent of their relations; details without reference to generalizations," the new is "philosophy." The new geography explores "the mutual relations of the earth, the air and the sea, and their united influence upon the animal and

[46]. Daniel Coit Gilman, "Humboldt, Ritter, and the New Geography," *New Englander* 18, no. 70 (May 1860): 294, 282, 284, 305.

vegetable life of the globe. It investigates the connection and the mutual dependence of the various divisions of the world." Ritter and Guyot see the world as "adapted and designed for the home of mankind," but Humboldt regards the world as a "manifestation of the forces of nature," which for Gilman is a "striking difference" between them.[47]

Forces, mutual relations, connections: these key words filter into the review's second half where Gilman reflects on how this new geography coheres with natural theology. Gilman notes in passing that Ritter resembled "Professor Silliman" in appearance and observes they were born "in the same year, the same, month, and the same day," evoking a parallel between the German geographer and the Yale system of religious science. Then he boldly claims that the new geography approaches more exactly "the thoughts of the Omnipotent as evinced in his works." To explain, Gilman subtly reworks Paley's watch analogy. For Paley, a watch found upon a heath implies a Watchmaker, but Gilman employs a more aesthetic analogy, a cathedral. Were we to destroy a cathedral and place its various parts in a museum, we might still admire the beauty of each part. But "[I]t is only when these fragments . . . are combined in the stately edifice that we can fully comprehend their beauty and their use, or admire sufficiently the purpose and the power of the architect who designed them." Gilman suggests that nature as a cathedral rather than autonomous objects of design is enabled by Humboldt and his disciples, who "emancipated" geography from "thralldom."[48] At the same time, Gilman's description opens the possibility of another interpretation: *Cosmos* is itself the cathedral. The German scientist gathers the facts into a magnificent whole, and Yale scientists are the congregants who acknowledge the Architect behind this human architect. If Humboldt himself lacked religious piety, Yale scientists would

---

47. Gilman, 286, 294.
48. Gilman, 289.

perceive God in nature when contemplating his scientific edifice. In the process, they release science from the tyranny of scriptural literalism into a world of ecological becoming.

Gilman reiterates the *a priori* trope: Humboldt emancipated geography from mere facts, but he does not drift into speculative territory. For Gilman, Humboldt uses the terms of part-whole in ways that were compatible with the theory of design in nature. The world is indebted, says Gilman, to his concept of isothermal zones and exhibition of laws pertaining to the "geographical distribution of plants and animals," and *Cosmos* is essential reading for anyone seeking to describe the scientific interconnections of a whole country, or for that matter, any "phase of organic life."[49] For Gilman, Humboldt represents a new standard for constructing beautifully empirical wholes, the fundamental goal of natural theologians in general and Yale scientists in particular.

For Gilman, *Cosmos* signals the second phase of Yale doxological science. This second phase makes use of new scientific tools and visuals to illustrate the unity of the data, following in the mode of Humboldt's travels and the magnificent fold-out *Tableau physique des Andes et Pays Voisins*, a visual representation of the assemblages and vegetational forms in his essay on plant geography (1807). Michael Dettelbach enumerates the variety of tools Humboldt carried on his travels: chronometers, telescopes, magnetic compasses, hygrometers, barometers, electrometers, and eudiometers, to name just a handful.[50] For Dana, these tools were essential for writing geographical reports that conveyed a dynamic earth; for Hitchcock, visuals on a Humboldtian scale proved invaluable for depicting the development of earth's geology.

---

[49]. Gilman, 296.
[50]. Dettelbach, "Humboldtian Science"; cf. Walls, *The Passage to Cosmos,* 121–29.

Dana displays his debt to Humboldtian tools and aesthetics in his writings on Mt. Shasta from his travels on the Wilkes Expedition.[51] In the geological section of the *United States Exploring Expedition* (vol. 10, 1849), Dana sketches the "general features" of the region before describing its geological structure, fjords, and particular kinds of minerals and rocks. Eight peaks in the Cascade Range "rise out of the chain" and "stand in solitary grandeur, wrapped in perpetual snows," but Shasta, or "Shasty," as Dana calls it, is the most intriguing to the geologist, for it lays bare igneous rocks and landscapes altered by water and volcanic activity.[52] To Dana's mind, Shasty demanded not just the objective classification of rocks but a dynamic, spatialized approach that accounts for the power of weather to shape one's views:

> A heavy mist covered the region as we approached it. Gazing up intently for the peak, visible in the earlier part of the day, we barely discovered some lights and shades far above us, which produced, through the indefiniteness of the view, a vision of immensity such as pertains to the vast universe rather than to our own planet.[53]

With "universe" and the blend of narrative and scientific description, Dana is writing what could have been a chapter in Humboldt's *Ansichten der Natur* (Views/Aspects of Nature), published in English in 1849, or the widely read *Personal Narrative* (1818). But Dana's reports also retain a theological frame. Earlier he explains that "the universe is the vast arena, where the majesty and

---

[51]. Aaron Sachs has detailed Humboldt's particular influence on nineteenth-century American explorers, arguing that Humboldt's work offered an "alternative to the "mighty rivers of empire." While Sachs refers to Dana as a teacher of many of the late nineteenth-century explorers, he does not examine Dana's own writings for Humboldt's influence. Sachs, *The Humboldt Current*, 20.

[52]. James Dwight Dana, *United States Exploring Expedition: Geology*, vol. 10 (Philadelphia: C. Sherman, 1849), 615.

[53]. Dana, 10:615.

wisdom of God's operations are displayed."[54] This natural theology exceeds the scale of Paley's watch found upon a heath; Dana's natural theology responds to the weather, even to single shades of light, and acknowledges the movement of time across one's view.

Dana uses the tools of modern geology to create a style of description that prioritizes landscape forms over strict classification of rocks. In the version of the Shasty encounter published in the *American Journal of Science and Arts* as "Notes on Upper California" (1849), Dana comments on the growing quantity of volcanic rock and describes hillocks of sizes varying from twenty to two hundred feet in height, speculating that their composition indicates this "hillock prairie" had been leveled under water "since the volcanic rocks were thrown up."[55] Dana's speculations on aqueous influence may indicate his catastrophist leanings rather than the uniformitarian approach of Charles Lyell, but Dana avoids absolute conclusions and remains open to where the data might lead him. As the expedition party traverses hills of trachyte rock, they send up a dusty ash behind them. They near a deep valley that resembles a crater, with sides "enveloped by pine or cedars," revealing Dana's continued interest in vegetation, not just geological features.[56] Walls describes Humboldtian aesthetics as "conveying the particular truth of the whole . . . only if the artist paints the truth of particulars."[57] Dana aspires toward the Humboldtian balance of detailed description and wider views of the whole: "Entering the mountainous region, we traveled for several miles over trachytic lava and trachyte, which lay in mounds and ridges, or in scattered blocks among the trees . . . . It afforded in some places a light-gray ashy soil, which, near a burnt tree, was occasionally of a pale reddish tint from the action of

---

[54]. Dana, 10:259.
[55]. Dana, 10:641.
[56]. Dana, 10:642.
[57]. Walls, *The Passage to Cosmos*, 226.

the heat. We had several views of the Shasty Peak through openings in the mountains."[58] Two pages over, Dana includes a sketch of Shasty to highlight the aesthetic-scientific assemblages that comprise the peak. The smaller summit, he says, bears the same relation as Vesuvius to Somma in Naples, conjuring up visions of Pompeii. Just as Humboldt climbing Mt. Chimborazo led to a beautiful cross-section in his *Vues des Cordillères* (1810), so Dana sought to illustrate the aesthetic experience of Mt. Shasta without diminishing the empirical data of his notes.[59]

Humboldt praised Dana's work to Samuel Morse when Morse was in Berlin in 1856. Morse wrote to Dana that Humboldt "spoke most enthusiastically of your work, characterizing it as the most splendid contribution to science of the present day."[60] Throughout his writings, Dana worked to combine empirical precision with the metaphysical wholeness of natural theology. Detractors of Dana's "naive" view of geology tend to overlook the extent to which the metaphysics, in fact, were open to revision.[61] For example, Dana remained interested in the question of defining species, and he acknowledged that his 1857 "Thought of Species" was made obsolete by Darwin. In the 1870s and 1880s, he sought to reconcile Darwin's natural selection with theism.[62] In his *Science and the Bible* (1856), Dana reflected on an organic empiricism in which unity was achieved not by *a priori* feats of mind but through the accumulation of data: God "evolved diversity out of unity, eliciting ten thousand concordances out of single

---

[58]. James Dwight Dana, "Notes on Upper California," *American Journal of Science and Arts* 7, no. 20 (March 1849): 249.
[59]. Walls, *The Passage to Cosmos*, 44–45, 91–92.
[60]. Daniel C. Gilman, *The Life of James Dwight Dana, Scientific Explorer, Mineralogist, Geologist, Zoologist, Professor in Yale University* (New York: Harper & Brothers, 1899), 356.
[61]. For instance, Hovencamp argued that Dana's approach did not survive the transition into the "open-ended, imprecise, and chance-filled world of Charles Darwin." Hovenkamp, *Science and Religion in America, 1800-1860*, 116.
[62]. James Dwight Dana, *Creation; or, the Biblical Cosmogony in the Light of Modern Science* (Oberlin, OH: E. J. Goodrich, 1885).

enactments in His plan of creation." Drawing luminous analogies from crystals, seeds, and leaves, Dana tracks this unwieldy "diversity out of unity," and for the scientist that takes this diversity seriously, "Nature . . . is not a mere collection of things, of trees, and rocks, and animals, and man, but living activities in harmonious plan and action."[63] Dana continually revised his understanding of metaphysical realities to accord with his experience of nature's vitality and interconnections.

Of all nineteenth-century American geologists, Silliman's student Hitchcock, professor of geology and natural theology at Amherst College, would appear the most anachronistic, an ordained Congregationalist minister turned scientist who seems to belong more in the eighteenth than in the mid-nineteenth century. Here was a figure—or so the story goes—that proves that secularizing science left some behind in their persistent attempts to harmonize science and religion.[64] But Hitchcock, in his day, corresponded with Lyell[65] and drew the praise of Darwin, and although the evidence is scant on whether he read Humboldt, his immensely popular *Elementary Geology* (1840) included beautiful images drawn by his wife, Ora Hitchcock, visuals that belong to a distinctively Humboldtian moment of US science. In addition, Hitchcock's science and religion develops into a message of proto-environmental conservation that Humboldt

---

[63]. Gloria Robinson, "Edward Hitchcock," in *Benjamin Silliman and His Circle: Studies on the Influence of Benjamin Silliman on Science in America : Prepared in Honor of Elizabeth H. Thomson*, ed. Leonard G Wilson (New York: Science History Publications, 1979), 49–83.

[64]. For example, Robert Thorson lumps Hitchcock with Agassiz and portrays him as a foil to Thoreau's more modern geological perspective. Robert M. Thorson, *Walden's Shore: Henry David Thoreau and Nineteenth-Century Science* (Cambridge, MA: Harvard University Press, 2014), 21 ff.

[65]. Hitchcock was critical of Lyell not for his uniformitarianism "but because his writings lacked any religious reference." Lyell's trips to New Haven would help modify Hitchcock's feeling toward him. See Gloria Robinson, "Edward Hitchcock," in *Benjamin Silliman and His Circle: Studies on the Influence of Benjamin Silliman on Science in America : Prepared in Honor of Elizabeth H. Thomson*, ed. Leonard G Wilson (New York: Science History Publications, 1979), 67.

would have approved. In his *Religion of Geology and its Connected Sciences* (1851)—ironically the text that seems to resemble most a conventional work of natural theology—Hitchcock posits a dynamic, historical natural world that exceeds any single theory of development, opening instead onto a Humboldtian scheme of empirical unity.

In the *Religion of Geology* Hitchcock subtly reworks the static, literal view of creation that some perceived in the biblical accounts. He harmonizes geology and Scripture through the "creation-gap" theory of Scottish scientists Thomas Chalmers and Hugh Miller, a theory that said there was a long gap between the initial creation of heaven and earth in Genesis 1:1 and the period which begins in Genesis 1:3 ("And God said, Let there be light, and there was light"), the 6,000 year-old geological period in which humans have lived. This theory opens the door for geological time to occur in the scriptural language of Genesis 1:2: "And the earth was without form, and void, and darkness was upon the face of the deep; and the Spirit of God moved upon the face of the waters." Then Hitchcock proposes theories of development that, while not nearly as speculative as those in *Vestiges*, were nonetheless richly organic and dependent on secondary forces rather than direct fiat.[66] As he puts it: "The geological view carries the mind back along the flow of countless ages, and exhibits the full wisdom of the Deity carrying forward, with infinite skill, a vast series of operations, each successive link springing out of that before it, and becoming more and more beautiful, until the glorious universe in which we live comes forth, not only the last, but the best of all."[67] Hitchcock was not adhering to a Leibnizian "best of all possible worlds" that locks the Deity into a detached, if benevolent, necessity. Rather, his key

---

[66]. For Hitchcock on development, specifically how Ora's "Tree of Life" image represented development, see J. David Archibald, "Edward Hitchcock's Pre-Darwinian (1840) 'Tree of Life,'" *Journal of the History of Biology* 42, no. 3 (2009): 561–92.

[67]. Edward Hitchcock, *The Religion of Geology and Its Connected Sciences*, [Rpt. of the 1852 ed.] (Hicksville, NY: Regina Press, 1975), 68.

words are “glorious” and “beautiful,” and beauty, the organic sense of succession, is the particular link between religion and science. Dana Luciano has similarly argued that Hitchcock “troubles the narrative of secularization” by merging empirical science and religious aesthetics: he plays with “wonder” as a “vitalizing force enabling the imagination to access prehistory.”[68] For example, Hitchcock helped identify a trace fossil in Greenfield, Massachusetts in 1835 and the following year published an article in which he argued that it was a footprint of an extinct species of gigantic wading birds. Darwin praised his efforts and wished him well locating bones to match the hypothesis.[69] Hitchcock embraced the historical grandeur of science, and he refused to limit geological development, as Agassiz and others sometimes did, to rigid epochs of creation.

A theme that emerges in *Religion* is the human responsibility to take care of the natural world. As an ordained Congregationalist minister, Hitchcock believed in a fallen world, but his geological studies led him to speculate on a kingdom of God to be “established on earth, where all these transformations of the animate and inanimate creation will take place,” citing German theologians for this expectation of a kingdom that will renew rather than destroy nature.[70] One can chalk this up as “millennialist,” and indeed millennialism was widespread in mid-nineteenth-century America.[71] But Hitchcock insists that there is good scriptural warrant for this vision of restoration, and geology, by producing beautiful knowledge of the earth, instills a more fine-

---

[68]. Dana Luciano, “Romancing the Trace: Edward Hitchcock’s Speculative Ichnology,” in *Anthropocene Reading: Literary History in Geologic Times*, ed. Tobias Menely and Jesse O. Taylor (University Park: The Pennsylvania State University Press, 2017), 98, 105.
[69]. Charles Darwin, “Letter to Edward Hitchcock,” November 6, 1845, Box 3, Folder 8, Edward and Orra White Hitchcock Papers, Archives and Special Collections, Amherst College Library, https://acdc.amherst.edu/view/asc:73442.
[70]. Hitchcock, *The Religion of Geology and Its Connected Sciences*, 89.
[71]. See Nathan O. Hatch, *The Democratization of American Christianity* (New Haven: Yale University Press, 1989), 184–89.

tuned hope in the coming renewal. For Hitchcock, if God is going to redeem creation rather than destroy it, Americans had to be careful lest they push the "extermination process" too far, as when the farmer "wages a relentless war against certain birds" only to have "noxious insects" multiply.[72] In Hitchcock's proto-conservationist comments, a long New England tradition of stewardship converges with Humboldt's science and engenders an ecological discourse that did not entirely exclude humans but granted them a certain measure of responsibility in the vast web of interconnected phenomena.[73] Hitchcock was probably not aware of Humboldt's proto-environmental message in Volume four of his *Personal Narrative* (1814-1829).[74] Yet, in arguing that human action affects the whole of nature, Hitchcock employs the Humboldtian scheme of a universe all of one piece, a cosmic chain of connections that, without proper stewardship, could very well turn against humanity. Hitchcock proclaims, "not a footprint of man or beast is marked upon its surface, that does not permanently change the whole globe."[75] For Hitchcock, the new geography of Humboldt, Ritter, and Guyot leaves no safe zone where humans could use the natural world improvidently and expect the globe to continue sustaining life.

Hitchcock wrote a geology textbook that sold widely, coordinated a geological survey of Massachusetts, and gave lectures to public audiences advocating a new kind of natural theology that expanded beyond the scale of previous literalist geology.[76] Through the efforts of these Yale-trained scientists, Americans began to perceive a richly dynamic and deeply historical

---

[72]. Hitchcock, *The Religion of Geology and Its Connected Sciences*, 432.
[73]. For the New England stewardship tradition, see Stoll, *Inherit the Holy Mountain*, 54–112.
[74]. On Humboldt's response to forest destruction in South America, see Grove, *Green Imperialism*, 366–67.
[75]. Hitchcock, *The Religion of Geology and Its Connected Sciences*, 415.
[76]. For a good overview of Hitchcock's scientific and religious work, see Robinson, "Edward Hitchcock."

world of nature, an ecological reality that demanded new metaphysical accounts as well as new ethical standards for human beings.

Humboldtian Facts: Hodge and the Religious Authority of Humboldt's Cosmic Science

Were Harvard and Yale scientists simply more open-minded on the subject of nature than other religious Americans? The answer shifts if Humboldt, and not Darwin alone, reflects a turning point in American science, and, more importantly, if we read Humboldt not as one who made religious belief impossible but as a figure who helped change the *conditions* of belief. Charles Hodge, the "pope of Presbyterianism," attended and took notes on Humboldt's original Cosmos lectures in Berlin in 1827-1828.[77] Hodge would go on to shape the religious perceptions of science in nineteenth-century America through his long stint editing *The Biblical Repository and Princeton Review*, a conservative periodical that often responded critically to articles in the *Christian Examiner* and the *New Englander*. Hodge disapproved of German idealism and insisted that empiricism was the only proper method for understanding the natural world and the Bible: both consisted of facts, and it was human interpretation of the facts that led to error. But Hodge also imbibed Humboldt's cosmic science, and through Humboldt's enlarged perspective, Hodge subtly transformed natural theology among more religiously conservative circles.

In his early thirties, Hodge traveled abroad to study biblical literature from the premier theologians and biblical scholars in Germany. He studied at Halle from 1827 through 1828, during which he filled his journal with censures of Friedrich Schleiermacher and his disciples, their "making themselves God – or reducing God to an idea," as he put it in one entry.[78] Despite

---

[77]. Paul C. Gutjahr, *Charles Hodge: Guardian of American Orthodoxy* (New York: Oxford University Press, 2011), 3.

[78]. Charles Hodge, "Journal of European Travels (Halle, Germany). February 1827 - April 1828," 163, Charles Hodge Manuscript Collection, Princeton Theological Seminary, http://archive.org/details/notesonlecturesp00hodg_11.

Hodge's scathing critiques of German idealism, a philosophy he believed sought to immanentize Christianity and make Jesus Christ part and parcel of nature in contrast to the creedal view of Christ as fully human and fully divine, he committed months to attending Humboldt's lectures in Berlin in the fall of 1827 through the spring of 1828. These celebrated lectures eventually became Humboldt's *Cosmos*. Hodge took copious notes on subjects as varied as planetary movement, volcanoes and earthquakes, and the influence of climate on civilizations, and he seems to have let down his usual skeptical guard listening to the German scientist.[79] For Hodge, Humboldt was an empirical, scientific authority whose facts and travel experiences overshadowed his overtures to *Naturphilosophie*.

Hodge arrived back at Princeton confirmed in his belief in the harmony between religion and science. Through his work editing *The Biblical Repository and Princeton Review*, he profoundly shaped the way that American Presbyterians thought about science. According to Mark Noll, Hodge consistently displayed a "theological commitment to the virtues of empirical investigation."[80] Hodge's empiricism, however, should be understood in a Humboldtian key, and *The Biblical Repository* registers the subtle transformations of this new empiricism. The *Cosmos* review that Hodge ran in his journal reveals how Humboldt's ecological science was shaping not only scientific inquiry but also scriptural exegesis concerning the natural world.

Samuel Tyler, a lawyer from Baltimore, wrote the *Cosmos* review for the *Biblical Repository*. Elsewhere Tyler avidly promoted the use of Baconian science for all areas of

---

[79]. Hodge, 97–183.
[80]. Mark A. Noll, "Science, Theology, and Society: From Cotton Mather to William Jennings Bryan," in *Evangelicals and Science in Historical Perspective*, ed. David N. Livingstone, D.G. Hart, and Mark A. Noll (New York: Oxford University Press, 1999), 109.

intellectual study.[81] Because he thought that Humboldt remained committed to the facts of nature, he approved of *Cosmos* and proceeded to use his review to correct what he perceived as a dangerous emphasis on "utility" in science. He says that for too long, scientists have neglected the "aesthetic view of nature." *Cosmos* proves that "the poet with his lyre, the painter with his pencil, the geologist with his hammer, and the chemist with his crucible, may sit down together in the same scene of nature, and listen to the teachings of science."[82] For Tyler, *Cosmos* presented a new aesthetic picture of knowledge, an empirical unity achieved not through more rigorous classification but through attention to relationships.

After introducing *Cosmos*'s scientific achievement, Tyler tries his hand at Humboldtian aesthetics. He follows loosely the pattern of Psalms frequently cited in natural theology, Psalm 19 and 104, but with modifications for the cosmic science. Tyler may have been encouraged to do so by Humboldt's own appreciation of the Bible in *Cosmos*'s second volume, where Humboldt says that Psalm 104 "represent[s] the image of the whole Cosmos" with its attention to landscapes, weather, animals and plants, and human activity.[83] Tyler adheres to the Psalm 104's chiastic structure with man at the center, yet he also embraces the poem's density leading up to the central verse ("man goeth forth to his work" [v. 23]) that makes humanity a small part of a vast mystery, starting with the light of the sun, through the earth's atmosphere, down to the waters of the deep, to creatures roaming amid mountains and fields of vegetation. Tyler begins, "First, the sky!" and then turns to the planet's waters, the mountains and plains, the seasons, and

---

[81]. A few years before he had published *A Discourse of the Baconian Philosophy* (Frederick City, MD: D. Schley & T. Haller, 1846).
[82]. [Tyler, Samuel], "Cosmos: A Sketch of a Physical Description of the Universe. By Alexander von Humboldt. Henry G. Bohn, London," *The Biblical Repertory and Princeton Review* 24, no. 3 (July 1852): 383, 382.
[83]. Humboldt, *Cosmos*, 1859, 2.58.

earth's vegetation. All of nature reflects beauty and a certain balance among the parts. For Tyler, of course, the architect was God, but in emphasizing aesthetics over utility, his review participates in a subtler natural theology discourse in which the interrelated details begin to speak for themselves. Except for an occasional reference to a Creator, Tyler for pages lets the natural relationships themselves draw the reader to the Deity.

Tyler concludes by reflecting on imagination. He explains that the science of the Cosmos seeks to understand complex geological strata and weave new relationships between living and nonliving matter. Humboldt surpasses "mechanical and chemical relations" and "zoological and botanical classifications" to achieve something higher, the facts of nature understood in relation to the imagination. Humanity remains at the center, but the center is becoming smaller as scientists come to realize the cosmic view. To illustrate Humboldt's merging of geological time with the current arrangements of nature, Tyler cites suggestive phrases from *Cosmos*: "'The level marshes and rich meadows of the tertiary, the rounded swells and short pastures of the chalk, the square built cliffs and cloven dells of the lower limestone, the soaring peaks and ridgy precipices of the primaries,' are all connected by a chain of thought, which runs down through all geological strata." For Tyler, the Author wrote the details into being, but the text often eludes mastery and calls forth an artistic response. The scientist discovers "forces and effects," and, if gifted like Humboldt, presents them in a magnificently ordered whole. "Of all natural influences which sway the heart for good, there is none so potent as beauty," a beauty that "springs from the very constitution of the earth," the beauty of the whole constructed through scientific knowledge.[84]

---

[84]. [Tyler, Samuel], "Cosmos: A Sketch of a Physical Description of the Universe. By Alexander von Humboldt. Henry G. Bohn, London," 397, 395, 397.

The natural theology wonder that Hodge and Tyler convey was conditioned by the vast, interconnected cosmos the German scientist presented to his audience. Paley's rhetorical "no design without a Designer" could not compare to the vital, contingent relationships the cosmopolitan scientist illuminated. In the age of *Cosmos,* no longer was it sufficient to depict God as establishing clear, singular evidences of design that humans could parse. Theologians and scientists came to understand that God had created a natural world of becoming. Scientists tracked nature's motion and vitality and did not assume the static order the theologian once supposed a given.

By recalling Hodge's initial assent to Humboldt and the facts of nature interconnected on a scale never before rendered in natural history, we can understand that even Hodge's rejection of Darwin came from the angle of Humboldt's empiricism. Almost fifty years after the Cosmos lectures, Hodge would become known for his infamous answer to the titular question posed in his *What is Darwinism?* (1874): "it is atheism." As Hodge explains, not that "Darwin himself and all who adopt his views are atheists," but Darwin's theory is "atheistic" insofar as "the exclusion of design from nature is . . . tantamount to atheism."[85] However, for Hodge, design had always been more of a refrain than an airtight exercise in empiricism or logic.[86] Listening to Humboldt in Berlin, he did not need the rhetorical cues of design to remember that God sustained the facts of nature, for the universe itself was a divine handiwork. He even accepted that there could be evolutionary processes in nature. What bothered him was not so much Darwin's science; it was the sense that Darwin was cutting off all ties to religion. As Hodge puts

---

[85]. Hodge, *What Is Darwinism? And Other Writings on Science and Religion*, 156–57.
[86]. See Hodge's critique of natural theology in which he argues that Scripture should have authority over nature. Charles Hodge, *Systematic Theology* (New York: Scribner, Armstrong, and Co., 1873), 1.21-32.

it, "the facts are God's, the explanations their own."[87] Raised in the era of Common Sense reasoning, Hodge believed that natural facts *always* harmonize with Scripture.[88] And facts, in the Humboldtian Cosmos, were coming alive with new force. They were interconnected in geological time and geographical ranges that suggested organic links across vast spatial scales. For Hodge, the facts belonged to God; for Darwin, they belonged to a world of self-regulating competition.

Romanticism and the Religious Ecological Poetics

US literary scholars have tended to identify the decades before the Civil War as the Romantic period of American literature, in which German philosophy and aesthetics, interpreted through commentators such as S.T. Coleridge and Thomas Carlyle, inspired a poetics of nature especially suited to a nation coming into its own identity. The recent scholarly interest in Humboldt does not reject this description but seeks to expand and clarify the sources that mattered to American writers who thought of themselves as students of the natural world. As Richards has shown, Humboldt was a Romantic in his own way, maintaining lifelong ties with Goethe and Schelling, even though Humboldt's style of science emphasized measurement, field observation, and travel to an extent unmatched by his German contemporaries; he refreshed Baconian empiricism for a new age of geology, biology, and zoology, among other specialties that grew in prominence in this period.[89] Yet the problem with Humboldt as Romantic scientist and empiricist for a new age of ecological interconnection is that these labels can lead scholars to overlook the continuing salience of religion for how Americans writers approached the natural

---

87. Hodge, *What Is Darwinism? And Other Writings on Science and Religion*, 134.
88. See Bozeman, *Protestants in an Age of Science*, 32–43.
89. Richards, *The Romantic Conception of Life*, 518–21.

world. For "Romantic" sometimes carry the stigma of "secular,"[90] and the ecocritical interest in a new, ostensibly areligious empiricism can subtly reinscribe the outworn narrative that science discredited natural theology.

In contrast, I contend that the American Romantic period was not one of sudden unbelief, but rather, one of transformation in natural theology's conditions: specifically, from observing individual objects of design to locating the cosmic scheme of interconnection. Scholars of secularity Taylor and Jager speak of "subtler languages" (channeling Percy Shelley) arising in the Romantic period, wherein for them aesthetics and philosophy were the main drivers, but Humboldtian science played just as crucial a role in the new ecological poetics.[91] American writers drew from the organicist philosophies of Coleridge and Carlyle *and* from primary works of science and cultures of science, and they created a religious ecological poetics through their innovative renditions of the natural world.

Humboldt's Cosmos did abet an emergent ecological discourse that critiqued older, more static versions of natural theology, often forcing those with religious faith to reckon with the new terms. In this way, Taylor's well-known shift in *A Secular Age* (2007) from "cosmos to universe" does seem to apply to Americans as they moved from "a limited, fixed cosmos to a vast, evolving universe," albeit with two caveats.[92] First, Taylor sees this process as basically

---

[90]. M. H. Abrams associated Romanticism with secularization in *Natural Supernaturalism: Tradition and Revolution in Romantic Literature* (New York: Norton, 1971). Catherine Rigby offers what she calls an "ecocritical rejoinder" to Abrams in *Topographies of the Sacred: The Poetics of Place in European Romanticism*, Under the Sign of Nature (Charlottesville: University of Virginia Press, 2004), 12.

[91]. Taylor, *A Secular Age*, 353 ff.; Colin Jager, "This Detail, This History: Charles Taylor's Romanticism," in *Varieties of Secularism in a Secular Age*, ed. Michael Warner, Jonathan VanAntwerpen, and Craig J. Calhoun (Cambridge, MA: Harvard University Press, 2010), 166–92.

[92]. Taylor, *A Secular Age*, 326.

completed by the publication of Darwin's *Origin* in 1859, but Humboldt had a more widespread role in shaping midcentury Americans' view of nature than Darwin, and Humboldt's influence continued through the initial reception of *Origin*. Second, Taylor's use of "cosmos" is somewhat misleading: for many American scientists and literary writers, Cosmos signaled a new ecological perspective on a divinely sustained reality.

While embracing Humboldt's ecological science, American writers created a poetics that consistently integrated religion. Walls delineates a nineteenth-century "Humboldtian poetics," but she implies that this poetics functioned in a realm beyond religion or that the ecological concept itself ensured religion's irrelevancy. Walls identifies the Humboldtian poetics as writing that seeks to make present the experience of contemplating the whole in the truth of nature's particulars; that deepens the narrative of origins in geological time and spatial patterns of distribution; that links the mind and natural world in the process of creating a Cosmos; that draws on metaphors of permeation, and that, in general, seeks to forge ideas "in the crucible of physical nature."[93] Her descriptions are accurate in many respects, but she does not account for how this poetics related to natural theology or how Humboldt shifted the conditions of belief. In what follows, I outline the religious ecological poetics that occurs when natural theology, understood in Jager's sense as a distinctively modern phenomenon ("science, but with an accent"), is transformed through *Cosmos* and other scientific works inspired by Humboldt.

First, with the rise of Humboldt's science, literary writers had at their disposal new ways to talk about the relationship between the local and the global in terms of life zones, provinces, and geographical regions, and the way such demarcations held or became permeable in one's reading of natural history. Agassiz as much as Gray had a role to play in the uptake of the

---

[93]. Walls, *The Passage to Cosmos*, 223–30, 231.

science of geographical distribution, seen as evidence of a Creator working throughout creation epochs or through secondary means in a self-propagating world. Humboldt's search for equilibrium across these demarcations seemed to confirm, as Dettelbach describes it, "the sensitive layman's intuition of Nature's constancy" and the need for "sober, accurate and global measurement" to achieve unity and order.[94] But this science of geographical distribution also supplied new terms and new opportunities to consider how the divine related to nature. For instance, vegetational forms or assemblages might be read as evidence of primordial order or as contingent forms the scientist assembled for descriptive purposes, or potentially both if the writer found them equally suggestive regarding the divine creation.

Geological time, while certainly not originating with Humboldt, gained new relevance for reading the forms of nature because Humboldt showed how geological epochs mattered for achieving the empirical unity of a Cosmos. Humboldt often best demonstrated the profound connection between past and present in travel pieces and sketches, such as those in *Anischten der Natur* (1849). For many America scientists, a theological perspective allowed a full range of speculation about time, even when they had to revise their metaphysics to correspond with their findings. The ecological poetics sought to order the geological strata, but the scheme of order was open to recalibration. The visuals Dana and Hitchcock created highlighted this fact: no single visual said it all, and so the scientist created new aesthetic scenes to capture the myriad layers of the natural world. As these scientists opened their work to the choices of aesthetic representation, American science itself became more fluid and amenable to revision.

Humboldt believed the Cosmos was receptive to mind, but his science's symbiosis of mind and nature challenged the notion that humans were entirely discrete from nature. In

---

[94]. Dettelbach, "Humboldtian Science," 299.

Humboldt's emergent ecology, humans constantly impacted the natural world, and not always in benevolent ways. The new ecological poetics tracked the effects of human action and delved into natural history to tell narratives of stewardship or degradation. Hitchcock's conservationism is a prime example, but there were other proto-environmental discourses in nineteenth-century America, from the Free Soil critique of plantation slavery to the recognition that Native tribes respected their natural surroundings whereas Europeans saw land for possessing.[95]

Finally, a general consensus that God worked in and through the facts of nature enabled a poetics that attempted to let nature speak for itself. This aspiration raises all sorts of questions: who is speaking for nature, and what motivates them to turn to nature? What specific aspects of nature are worth narrating?[96] But even the arch-Presbyterian Hodge sought to let nature tell its own story and not impose speculative theological theories. Good science was empirical, and all American scientists wanted this label on their work. Agassiz sought to make sure his theory of geographical distribution balanced the design of God with relevant data from the scientific community. Henry David Thoreau, especially in his later writings, tried to capture the intrinsic rhythms and ecological processes of the natural world even as he gave himself over to

---

[95]. For the Free Soil movement, see Eric Foner, *Free Soil, Free Labor, Free Men: The Ideology of the Republican Party before the Civil War* (New York: Oxford University Press, 1995); for a long, diverse tradition of conservation centered on laboring with nature, see Timothy Sweet, *American Georgics: Economy and Environment in Early American Literature* (Philadelphia: University of Pennsylvania Press, 2002); for a relevant discussion of Native traditions of nature and European conquest, see Willie James Jennings, "Binding Landscapes: Secularism, Race, and the Spatial Modern," in *Race and Secularism in America*, ed. Jonathon Samuel Kahn and Vincent W. Lloyd (New York: Columbia University Press, 2016), 207–38.

[96]. In *Passions for Nature* (2009), Rochelle Johnson has examined how nineteenth-century writers approached the problem of speaking for nature. She argues that Thoreau and other writers allowed nature to speak for itself, but other writers like Ralph Waldo Emerson projected American values onto the natural world. Rochelle Johnson, *Passions for Nature: Nineteenth-Century America's Aesthetics of Alienation* (Athens: University of Georgia Press, 2009).

theological wonder. These scientists and writers took to heart Humboldt's project of assembling facts for a new appreciation of relations and interconnections that they saw as sustained by God.

The ecological poetics in nineteenth-century America arose not through an eclipse of natural theology but through subtle shifts in how to understand divine presence and actions in nature. Reconstructing this reception history of *Cosmos* clarifies why American writers who became more invested in the new science did not subtract religion, or at least not theological language, from their work. It helps us avoid the misleading narrative of religious decline and the triumph of the secular when we tell the story of emergent ecology. Although scholars have usefully redirected attention to Humboldt, many have neglected the insights of the previous generation of historians who addressed misconceptions about the relationship between science and religion in the age of Darwin. Likewise, US literary critics have assumed that Humboldt's own lack of religious enthusiasm produced or at least initiated areligious ecological writing in America. Yet as Taylor and others have claimed, the secular refers to a new landscape of belief rather than belief's demise. Revisiting the converging terms and discourses of US natural theology and Humboldt's science expands the horizon for how emergent ecology developed into the interconnected world of nature that scientists and others study and cherish today. In particular, literary texts powerfully synthesize religion and science in ways that defy broad claims that one mode won out or developed historically apart from the other's insights.

Chapter 2

Writing Sacred Natural History: Susan Fenimore Cooper's *Rural Hours*

Susan Fenimore Cooper's *Rural Hours* (1850) gives an account of one natural year at Cooperstown, New York, and nearby Lake Otsego. It has recently garnered critical attention for the way Cooper integrates natural science and makes prescient, proto-conservationist comments about the health of the forest region she calls home.[1] The book is a series of descriptive, observational journal entries that she organizes around the seasons starting in early spring and concluding in winter. Her title evokes the keeping of religious hours: *Rural Hours* conveys the idea that the careful study of nature, even in an age of secularizing scientific advances, is a kind of sacred enterprise.

Rural Hours' journalistic form may have been influenced by the devotional journal that her father, the novelist James Fenimore Cooper, was keeping at the same time, on his way to converting to the Episcopal Church in 1851.[2] Her father's journal entries might seem perfunctory were it not that a certain rhythm emerges in the basic pattern of Scripture, a brief response to his reading, and a weather report. In February, when he reads Romans and Corinthians, he notes persistent snow, cold days, and occasional sun. When he reaches Ephesians and Philippians, he records some thawing. In March, when he tackles Revelation and Genesis (the first five chapters, "A strange account! Yet much profound understanding of the subject in it"), he writes that the town has spring-like weather that breaks up winter's monotony. While he makes few comments that are strikingly devotional, his terse notes indicate that nature and sacred text relate closely to

---

[1]. See in particular the work of Rochelle Johnson, who is currently writing a biography of Cooper. Johnson; Rochelle Johnson and Daniel Patterson, eds., *Susan Fenimore Cooper: New Essays on Rural Hours and Other Works* (Athens: University of Georgia Press, 2001).
[2]. On her father's conversion, see Wayne Franklin, *James Fenimore Cooper: The Later Years* (New Haven: Yale University Press, 2017), 518.

each other. His March 8 entry reads, "Revelations. Ash Wednesday. Went to church. Uncommonly soft, spring-like weather. The snow goes very fast. Sleighing indeed gone. Looks like rain."[3] Reading the Bible, attending church, sleighing: an anthropocentric perspective reveals that religious devotion and nature's rhythms merge in the rituals of human activity.

Susan Cooper, a lifelong Episcopalian, also perceived an intrinsic relationship between religious devotion and the natural world, but her approach to nature is often more subtle, more attentive to natural history for its own sake. In her March 8 entry, likely also composed in 1848,[4] the "spring-like weather" that her father briefly notes has its own life, holding her complete attention. She writes, "Spring in the *air*, in the *light*, and in the *sky*, although the earth is yet unconscious of its approach. We have weather as mild as this in December, but there is something in the fulness and softness of the light beaming in the sky this morning which tells of spring" (5). As this short entry unfolds, Cooper relies on interrelationships among animals, vegetation, and climate to communicate spring's gradual arrival. She provides qualifying words and phrases to keep her description true to empirical observation and her region's natural history. The entry's last sentence affirms the scientific record of the woodpecker's and jay's winter habits ("it is true that neither the downy woodpecker nor the jay leaves this part of the country") and

---

[3]. James Fenimore Cooper, *Letters and Journals*, ed. James Franklin Beard (Cambridge, MA: Belknap Press of Harvard University Press, 1960), 5.291.

[4]. Much like Henry David Thoreau's *Walden* (1854), Susan Cooper compresses two years of entries into a single year account. In the preface to *Rural Hours* she states, "The following notes contain, in a journal form, the simple record of those little events which make up the seasons in rural life, and were commenced two years since, in the spring of 1848, for the writer's amusement." As far as I have been able to tell from comparing with her father's entries, this particular entry dates from 1848. Susan Fenimore Cooper, *Rural Hours*, ed. Rochelle Johnson and Daniel Patterson (Athens: University of Georgia Press, 1998), 3. Hereafter cited parenthetically.

then further clarifies that record by noting that these particular birds index spring's arrival because they seldom roam in cold weather (5).

Cooper writes what I call here *sacred natural history*, a reconfigured natural theology that stresses observing the Creator's works with the methods of scientific empiricism and the wide-ranging views then becoming available through new geology and biogeography studies. Cooper discusses the book of Ruth from the Hebrew Bible and notes its place in "sacred history" (16); her own book, however, presents nature itself as sacred, set apart from humans, a historically rich and creatively vital reality that she seeks to represent using a particular historical-literary hermeneutic. This chapter describes in detail her practice of writing sacred natural history, one that assumes no conflict, struggle, or even distinction between science and religion and that, furthermore, evinces a specific literary-historical aesthetic. In what follows, I examine scientific principles and the affect of wonder that Cooper emphasizes in *Rural Hours*: she seeks communion with the growing network of Humboldtian naturalists who were seeking to study nature's complex interrelationships; she pursues fidelity to empirical fact and details nature's complex holisms; and she cultivates wonder, a surprisingly undertheorized affect in nature writing. She develops these principles and the affect of wonder through her Episcopalian Christian perspective.

Cooper's critics have tended to explain her subtlety and observational precision by pointing to her reading of natural science, in particular works by Alexander von Humboldt, Alphonse de Condolle, Charles Lyell, and Baron Cuvier, among many others, scientists whom historians sometimes attribute with secularizing natural history. Yet in keeping with the devotional form her title implies, *Rural Hours* employs scientific references not as a substitute for religious commentary but as an extension of it. Cooper reimagines and reorients natural

theology, the tradition of finding God in nature and harmonizing new science with theism, to cohere with the dynamic natural world envisioned in scientific works like Humboldt's *Cosmos* (1845-1859), a book her family owned along with Humboldt's *Personal Narrative* (1814-1829), his account of his South American travels.[5] Critics have perceived tension between Cooper's religious rhetoric and scientific understanding, a tension that arises from the secularization narrative that identifies this midcentury moment as a prelude to Charles Darwin's *Origin of Species* (1859).[6] While the standard midcentury narrative holds true in certain respects, Cooper's specific denominational tradition and way of knowing led her to write a different kind of natural history less dependent on conventional natural theology adages and perspectives (think of William Paley's 1802 insistence that nature's static "design" implies a "Designer," a claim her book nuances). She incorporates historical scholarship of the Bible and a balanced epistemology of sacred text, tradition, and reason to craft a more scientifically attuned natural theology. She rarely uses her Christian epistemic as a way to moralize; instead it is a means for her to be more faithful to the details of the natural world. Often in *Rural Hours*, Christian doctrine is not assumed *a priori* but instead used as a means to study and understand nature's sacred, decisively non-anthropocentric events.

Scholars of religion and secularity have traced how, with the advent of modern Western science, the sacred came to be posited in nature in a way that exceeded the sacred-secular

---

[5]. Cooper paraphrases passages from *Cosmos*'s second volume in her introduction to her 1855 anthology of nature poetry, *The Rhyme and Reason of Country Life*. In *Rural Hours* she references the *Personal Narrative* twice. I discuss these references in more detail below.
[6]. See, for instance, Tina Gianquitto, *"Good Observers of Nature": American Women and the Scientific Study of the Natural World, 1820-1885* (Athens: University of Georgia Press, 2007), 103; Timothy Sweet, "Global Cooperstown: Taxonomy, Biogeography, and Sense of Place in Susan Fenimore Cooper's *Rural Hours*," *ISLE: Interdisciplinary Studies in Literature and Environment* 17, no. 3 (Summer 2010): 543.

distinction of Latin Christendom. In his classic study, *The Sacred and the Profane* (1957), Mircea Eliade provides a still relevant definition of the sacred, one grounded in comparative religious studies: "the sacred reveals absolute reality and at the same time makes orientation possible; hence it *founds the world* in the sense that it fixes the limits and establishes the order of the world."[7] Following Eliade's definition, we could say that a scientific orientation, even amid rapid secularization in the nineteenth century, presupposed a founding creational moment. Charles Taylor and Dana Luciano have shown that nineteenth-century science in particular manifested nature's sacrality, its set apart-ness from mundane human experience, by portraying its continuously dynamic and creative potentiality. As Taylor explains, the aesthetics of the sublime and the scientific discovery of geological time initiated a newly immanent view of the sacred.[8] Likewise, Luciano emphasizes that the sacred did not recede when science challenged the standard biblical chronology of a 6000-year-old earth; rather, the sacred came to reside in natural history's mysteries and complexities, in the set-apartness and "sheer immensity of geological time."[9] While a familiar but now-outmoded secularization narrative, in which science eventually comes to eclipse religion, assumes that these developments made theistic approaches to nature less persuasive, in the mid-nineteenth century natural science tended to inspire new possibilities for how God created and sustained the natural world.

Understanding how Cooper shuttles between the religious and the secular, the sacred and the profane (hence the juxtaposition of *sacred* and *natural history*), the empirical and lyrical, also prepares us to interpret better her complex positionality. In her day, women were barred from

---

[7]. Emphasis original. Mircea Eliade, *The Sacred and the Profane*, trans. Willard R. Trask (New York: Harcourt, Inc., 1987), 23, 30.
[8]. Taylor, *A Secular Age*, 299 ff.
[9]. Luciano, "Sacred Theories of Earth: Matters of Spirit in *The Soul of Things*," 714–15.

publishing articles in US scientific journals and joining national science societies. When women nature writers did aim to contribute to scientific discourse, they were expected to provide a moralistic justification that set them apart from male professional science that was beginning to downplay such religious commentary.[10] However, the Humboldtian science network included a group of women who translated and popularized his writings, and their example may have led Cooper to perceive an opening for her own scientific insights. In her book, she makes headway through a form of natural history that could *meet* the expectation that women write about nature moralistically and *exceed* that expectation by incorporating references to "professional," male natural science and grounding her book in her own empirical observations and theoretical ideas. Her elite position as a Cooper was no guaranteed entrance into the male domain of professional science, although her wide connections to the transatlantic literary world through her novelist father would help provide some of the resources with which she performs a nascently ecological natural science.

At the same time, her proto-conservationism and its attendant science were predicated on her position as a settler colonist near Lake Otsego, where the Haudenosaunee people, including Mohawk and Oneida, had lived and continued to dwell on land near her home. So even as she broke barriers as a woman writing in a domain dominated by white male scientists, her vision of nature often elided the past and very real, present presence of Native peoples. Her grandfather's seizure of Native land at Cooperstown made possible her nature writing, and, as Stephen Germic demonstrates, she sometimes positions herself as a true "native," over and against Mohawk and Oneida still living in the region, to buttress her identity from European immigrants then settling

---

[10]. See Ann B. Shteir, "Elegant Recreations? Configuring Science Writing for Women," in *Victorian Science in Context*, ed. Bernard V. Lightman (Chicago: University of Chicago Press, 1997), 236–55; Gianquitto, *Good Observers of Nature,* 1–3.

in New York.[11] Similar to her father in many of his novels, Susan Cooper sometimes perpetuates the "vanishing Indian" myth. In *Rural Hours* her forward-thinking conservationist vision registers, though certainly fails to redress, the settler colonial history that was part of her region's ecological transformation. This chapter proposes that understanding Cooper's mode of writing sacred natural history helps further clarify these gender and racial contexts that critics are beginning to see as relevant to her work: her Episcopalian, Humboldtian science is a nuanced natural theology that meets and exceeds the era's gender expectations, and her religious-scientific perspective sometimes leads to greater insight and sometimes perpetuates stereotypes toward Native histories and cultures.

As I will show, *Rural Hours* often dislodges sacred text and traditions from their doctrinal contexts to make them resonate with nature's wondrous intricacies in present time and across natural history. This approach is consistent with the historical-critical methodologies of the Bible then making inroads. Her Episcopalianism is not peripheral but central, producing a balance of Scripture, tradition, and reason and a communion-centered approach to science. With faithful observation, she believes, the sacred will reveal itself from and within the life of nature, and she envisions her role as to report these natural history occurrences. She uses Scripture and other components of her faith to help her study and aesthetically describe natural phenomena. In this way, her faith underwrites and gives shape to her science rather than impeding it. Nineteenth-century readers were impressed by her empirically precise and poetically rendered account, and, in retrospect, we can see that her work was a harbinger of what would soon be called "ecology," the study of interrelationships between species and their surroundings. At the

[11]. Stephen Germic, "Land Claims, Natives, and Nativism: Susan Fenimore Cooper's Fealty to Place," *American Literature* 79, no. 3 (September 2007): 475–500.

end of this chapter, I discuss the evidence that suggests Charles Darwin and Henry David Thoreau read *Rural Hours* and incorporated some of her insights. Her book made a rich, albeit subtle contribution to the era's questions about origins, distribution, and development, one that fully integrated the theological background of these inquiries into nature.

Cooper and Humboldtian Natural Science

When scholars rediscovered Cooper's writings in the 1990s for the then-inchoate field of ecocriticism, they usually remarked on her scientific references,[12] though only recently have they begun to take her scientific interventions as worthy of extensive analysis. Nina Baym pointed out that Humboldt's "*Cosmos* appeared in English in 1848, just when Cooper began her own project" and that it could have inspired her perception of Cooperstown in "its relation to the global." Baym's initial observation connecting Humboldt's and Cooper's scientific aesthetic set a pattern for later scholarship, but she then concluded that *Rural Hours* is a "secular work privileging natural science above other forms of knowledge."[13] This point needs clarification, as it tends to follow the Humboldt comparison: Cooper viewed science as a sacred undertaking, and in her time, natural science, even the work of Humboldt, was not entirely separated from religious ways of knowing.

---

[12]. See, for instance, Vera Norwood, *Made from This Earth: American Women and Nature* (Chapel Hill: University of North Carolina Press, 1993), 25–53; Lawrence Buell, *The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture* (Cambridge, MA: Belknap Press of Harvard University Press, 1995) in which Buell deemed *Rural Hours* "the first major work of American literary bioregionalism" (406); Rochelle Johnson and Daniel Patterson, eds., *Susan Fenimore Cooper: New Essays on Rural Hours and Other Works* (Athens: University of Georgia Press, 2001); Michael A. Bryson, *Visions of the Land: Science, Literature, and the American Environment from the Era of Exploration to the Age of Ecology* (Charlottesville: University of Virginia Press, 2002), 105–33.

[13]. Nina Baym, *American Women of Letters and the Nineteenth-Century Sciences: Styles of Affiliation* (New Brunswick, NJ: Rutgers University Press, 2002), 88.

More recent critics have discussed with greater specificity the ways Cooper intervenes in Humboldtian, emergent ecological science. Walls has summarized the natural scientific principles that Humboldt promoted as Explore, Collect, Measure, Connect: explore the sensual particulars of nature and remain open to their unpredictability; collect samples, not to store them in a laboratory but to create a new idea of nature; measure aspects of the weather, vegetation, soil, and geological strata to understand the interplay of forces; and connect the findings into patterns and underlying laws.[14] Cooper devotes her attention to the local particulars of the Cooperstown and Lake Otsego environs by walking almost every day and keeping extensive records and notes of the seasons, and she consistently contextualizes her findings in what Rochelle Johnson calls, echoing Baym, the "larger global-historical record."[15] Cooper's comparative references are a roll call of nineteenth-century scientists sometimes associated with secularization, including Humboldt himself and Lyell, said to have discredited the literal Mosaic age of earth. By interweaving scientific references, Cooper engages with the fields of ornithology, botany, zoology, and geology, as well as the emerging subfields of biogeography (the distribution of species) and phenology (the study of seasonal rhythms and cycles). She approaches what would soon be called "ecology" through her studies of plant geography and this subfield's direct link to the rise of ecological science.[16] She often takes issue with the Linnaean system of classification and employs "the open-ended, organic metaphors there were coming to

---

[14]. Walls, *The Passage to Cosmos*, 126–29.
[15]. Rochelle Johnson, *Passions for Nature: Nineteenth-Century America's Aesthetics of Alienation* (Athens: University of Georgia Press, 2009), 32; cf. Timothy Sweet, "Global Cooperstown: Taxonomy, Biogeography, and Sense of Place in Susan Fenimore Cooper's *Rural Hours*," *ISLE: Interdisciplinary Studies in Literature and Environment* 17, no. 3 (Summer 2010): 541–66.
[16]. Nicolson, "Humboldtian Plant Geography after Humboldt."

govern presentations and understandings of the natural world."[17] *Rural Hours*, in these ways, evokes and contributes to Humboldt's holistic, emergent ecological science of particulars interconnected by climate, geological history, and species' migration.

Still, reading *Rural Hours* in terms of Humboldtian science often assumes a secularization narrative in which the findings and theories of natural science start to upend theistic views of nature. As Cooper's work shows, the actual historical process was more gradual and fluid, insofar as the conventions *within* natural theology, from biblical hermeneutics to the notion of nature's "design," were undergoing their own shifts and reformulations. Walls comes close to the mark when she writes that Cooper "interprets Humboldt in the characteristically American way, by absorbing his picture of the universe into traditional natural theology."[18] "Absorb," though, does not quite capture the scientific-theological practice of *Rural Hours*. Cooper interprets the natural world using a variety of scientific and religious sources that she presents through her Episcopalian epistemic. She participates in scientific, Humboldtian discourse and deepens and expands natural theology conventions with her distinctly Episcopalian approach to nature.

Episcopalianism and Cooper's Communion Epistemology

Scholars have yet to explore how Cooper's upbringing in the Episcopal Church informs *Rural Hours*.[19] Her father, long before his baptism into the Episcopal Church, had represented

---

[17]. Gianquitto, *Good Observers of Nature*, 116.
[18]. Walls, *The Passage to Cosmos*, 285.
[19]. The notable exception is Michael Davey's brief discussion of how her Episcopalian tradition resisted the era's revivalism, but Davey does not explore how her religious tradition affected her view of nature. Michael Davey, "Reading Susan Reading Ruth: Audience, Response, and the Historical Hermeneutics of *Rural Hours*," in *Susan Fenimore Cooper: New Essays on Rural Hours and Other Works*, ed. Rochelle Johnson and Daniel Patterson (Athens: University of Georgia Press, 2001), 134–38.

Cooperstown's Christ Church at the New York diocese conventions, and he was also warden and vestryman. These facts suggest that the Episcopal Church, connected to the family primarily through the family of James's wife, Susan Augusta de Lancey, was a means to quasi-aristocratic standing for the Coopers.[20] However much that may have been the case, Susan, baptized into the Church as an infant, was also genuinely pious, evident in the devotional journal she kept throughout her life, in her work as a Sunday school teacher, and in the articles she wrote for the journals *The Living Church* and *The Churchman* in the 1880s. She was relieved when her father converted in 1851, writing in her personal devotional journal, "From the depths of my heart would I bless the riches of the mercy of our Heavenly Father, who hath led my beloved Father to seek, and receive the Holy Sacrament of Baptism."[21] In "Holy Sacrament" we can glimpse the high church elements of the Episcopalian faith. Her denomination's epistemology also shaped her understanding of nature. In particular, the high church and broad-minded elements of her Episcopalian faith helped her create a deeply participatory—and surprisingly non-hierarchical—view of nature that begins with the individual observer and leads to communion with other scientific observers, in her country and abroad.

The Episcopal Church in New York had long prided itself on balancing Scripture, tradition, and reason in pursuit of Christian truth, deriving from the denomination's Anglican roots.[22] As historian James Elliot Lindsley observes, New York Episcopalians were grounded

---

[20]. Franklin, *James Fenimore Cooper: The Later Years*, 518.

[21]. Rochelle Johnson has graciously shared her personal transcriptions of the journal. Excerpt from Susan Fenimore Cooper's *Devotional Journal* (ca. 1845-1861), page 31, labeled "Easter April 1851." Collection of the Fenimore Art Museum Library, Cooperstown, NY 13326. Cooper Family Papers, gift of Henry Weil.

[22]. Mark A. Noll, *America's God: From Jonathan Edwards to Abraham Lincoln* (New York: Oxford University Press, 2002), 120–22; 238–41; E. Brooks Holifield, *Theology in America: Christian Thought from the Age of the Puritans to the Civil War* (New Haven: Yale University Press, 2003), 234–54; Robert Bruce Mullin, *Episcopal Vision/American Reality: High Church*

especially in the "orderliness, the cadence—the *reasonableness*—the beauty and stateliness of Prayer Book worship."[23] Along with Scripture, Cooper cites in her nature writings the Book of Common Prayer, the Canticle of the Three Children, and the *Te Deum*, along with other liturgical texts. In an 1883 series of articles on "Parish Life" published in *The Churchman*, she affirmed and celebrated the variety of worship modalities in her Episcopalian faith: the sacraments, the liturgy, the creeds, the lectionary of Scripture, and the Christian calendar.[24] E. Brooks Holifield describes how Episcopalians found "in the communal decisions of the church through the centuries a check on the 'private judgment' of the rational individual."[25] Scripture oriented Episcopal worship, reason guided their manner of worship, and tradition kept reason from becoming too individualistic. The three working in tandem gave the denomination a reputation for broadmindedness. On the whole, the Episcopal Church stood apart from the Great Awakenings and most forms of evangelicalism in the nineteenth century, rejecting revivalism by adhering to what they believed were more historic forms of conversion and worship.[26]

In *Rural Hours*, Cooper's preface grounds the work in her denomination's reputation for reasonableness by invoking the sixteenth-century Anglican luminary Richard Hooker: "Should the volume give pleasure to any who, like the honored Hooker, love the country, 'where we may see God's blessings spring out of the earth,' some little reluctance with which it has been printed will be more than repaid to the writer" (3). Hooker was widely known as a forerunner to the

---

Theology and Social Thought in Evangelical America (New Haven: Yale University Press, 1986).

[23]. James Elliott Lindsley, *This Planted Vine: A Narrative History of the Episcopal Diocese of New York* (New York: Harper & Row, 1984), 78.

[24]. Her "Thoughts on Parish Life" series ran from June 30-October 20, 1883, in *The Churchman*.

[25]. Holifield, *Theology in America*, 234.

[26]. See Davey, "Reading Susan Reading Ruth: Audience, Response, and the Historical Hermeneutics of *Rural Hours*," 137; Mullin, *Episcopal Vision/American Reality*.

Anglican Church's claim to revive reason alongside Scripture and tradition, helping to form the church's reputation as the *via media* between Catholicism and Puritanism.[27] The quote from Hooker also aligned her book with such English naturalists as Gilbert White (1720-1793) and John Leonard Knapp (1767-1845), admired by many nineteenth-century naturalists, including Thoreau and Darwin, for their proto-ecological treatments of nature with an unassuming religious ethos. Johnson suggests that Cooper may have conceived of her book as completing a "trilogy on behalf of nature" with White's *The Natural History of Selbourne* (1789) and Knapp's *Journal of a Naturalist* (1829)[28]; we might also say that *Rural Hours* is the American Episcopalian extension of these Anglican texts. Cooper goes on in the preface to say she makes "no claim whatever to scientific knowledge," but then assures readers that her book is "free from great inaccuracies" (3). In this way she subtly associates her work with scientific discourse and introduces her fidelity to empirical fact as similar to the reasonable spirit of her Anglican forebears.

Episcopalians were more prepared for the rise of historical-critical methodologies of the Bible than some Protestant denominations because they had long understood the Bible as one sacred text among other authoritative texts in the Christian tradition and were also open to more figurative readings of Scripture.[29] The Higher Biblical Criticism promoted by Johann Herder, J. G. Eichorn, and other European scholars sought to compare the biblical text with other Ancient Near Eastern literatures and archaeological findings. At some point, perhaps during the Cooper family's time in Europe (1826-1833), Susan Cooper likely encountered historical-critical

---

[27]. See A. J. Joyce, *Richard Hooker and Anglican Moral Theology* (New York: Oxford University Press, 2012).
[28]. Johnson, *Passions for Nature*, 170.
[29]. Holifield, *Theology in America*, 242–45.

methods.[30] In addition, her Episcopalian tradition may have put her in touch with the work of Anglican clergyman Robert Lowth (1710-1787), who in his *Lectures on the Sacred Poetry of the Hebrews* (1787) had initiated a new appreciation for the poetry of the biblical writers.[31] We do not know whether she read these writers before or while composing *Rural Hours*, but in an 1855 essay Cooper associated Humboldt's *Cosmos*, in particular its second volume, with a surge in comparative studies of religion and a new emphasis on the Bible's poetry and its influence on the philosophy of nature in the West.[32] In her writings, she reads Scripture with a historical-literary lens in an era when many Protestants were committed to a literalist interpretation. This hermeneutic is particularly evident, as I discuss later, in how she commends the book of Ruth for its pastoral spirit and employs natural history to correct imprecise translations of Psalm 137.

This historical-literary hermeneutic involved a community of interpreters who together seek the text's myriad layers of truth, and a similar communal sense proved invaluable to her scientific practice. Cooper's reasonable epistemology and balanced approach to textual authority led her to prioritize communion. As a form of communion-seeking, she links her journaling to a larger community of naturalists.[33] She sought the sacred in nature not to discern the ways of God

---

[30]. Gianquitto, "The Noble Designs of Nature: God, Science, and the Picturesque in Susan Fenimore Cooper's *Rural Hours*," 175–77; cf. Michael Davey, "Reading Susan Reading Ruth: Audience, Response, and the Historical Hermeneutics of *Rural Hours*," in *Susan Fenimore Cooper: New Essays on Rural Hours and Other Works*, ed. Rochelle Johnson and Daniel Patterson (Athens: University of Georgia Press, 2001), 129–53.

[31]. For Lowth's impact on English culture and literature, see Colin Jager, *Unquiet Things: Secularism in the Romantic Age* (Philadelphia: University of Pennsylvania Press, 2015), 208–10.

[32]. Susan Fenimore Cooper, "Introduction to *The Rhyme and Reason of Country Life: Or, Selections from Fields Old and New*," in *Essays on Nature and Landscape*, ed. Rochelle Johnson and Daniel Patterson (Athens: University of Georgia Press, 2002), 24–44.

[33]. Ashley Barnes argues that "communion" emerges in the nineteenth century as a "resistant, Catholic-inflected mode of knowing and loving" in contrast to the more Protestant or post-Protestant notion of "private, unmediated revelation as the right way to access the divine." Cooper's high church, Episcopalian tradition aligns more with this Catholic, communal epistemology. Barnes, *Love and Depth in the American Novel: From Stowe to James*, 3.

through individualistic revelations, as when Emerson experienced a primarily private revelation walking across the Concord commons, but to discover nature's truth and communicate that truth to other scientists and students of nature. Certainly Cooper's book emphasizes the role of the individual observer in recording nature's events, but her approach to science was far from idiosyncratic: she sought to present her findings in a global context of knowledge about nature, aspiring toward shared knowledge rather than dwelling on individual experience.

The scientific network, of course, was often denied to women, but Cooper may have perceived an opening for her work as women began to translate, popularize, and practice Humboldtian science. In the same way that the Episcopal Church held to a full church hierarchy and integrated an ecclesiastical structure rooted in their understanding of the apostolic order of early Christianity, nineteenth-century natural science also had its male hierarchies, with Humboldt at the top and Louis Agassiz as something like the American archbishop. Yet Humboldtian ecological science also took hold through a transatlantic network of women, as Walls briefly notes: Mary Somerville's *The Connexion of the Physical Sciences* (1834) and *Physical Geography* (1848) not only integrated Humboldtian science but were works admired by the German scientist himself. Somerville, Maria Mitchell, Helen Maria Williams, Elise Otté, and Elizabeth Sabine formed a network of women who either wrote Humboldtian works themselves or helped translate Humboldt's works for an English-speaking audience.[34]

Following the example of these women writers of science, and keeping with her denomination's balanced epistemic, Cooper develops a surprisingly egalitarian view of the scientific enterprise throughout *Rural Hours*. This sense of scientific communion implied

---

[34]. Walls, *The Passage to Cosmos*, 142; cf. Kim Tolley, "Learning from Nature: Alexander von Humboldt's Influence on Young Women's Geography and Natural History Education in Nineteenth-Century America," *Paedagogica Historica* 56, no. 1–2 (March 2020): 101–20.

epistemic humility: she learns from other observers, and, boldly for a nineteenth-century woman, she is not afraid to correct male writers of nature. Early on (March 11) she challenges famed American ornithologist Alexander Wilson's claim that Baltimore orioles are not to be found in the pine countries, and later (June 15), she takes to task the fanciful image in Martin Farquhar Tupper's *Proverbial Philosophy* of hummingbirds feeding in tulip flowers. She notes that hummingbirds much prefer the trumpet-flower or the tulip tree, being drawn not to the flower's perfume but to the amount of nectar within. Cooper recalls that she once found a nest in a lilac-bush, but that they are sometimes satisfied with a nest in a coarse weed or a white oak sapling. In such passages, she reveals the limits of guide-book science and pursues the model of a naturalist who tracks nature's vagaries and discovers new knowledge for the scientific network. The unassuming manner in which she references and lightly corrects other naturalists stems from her Episcopalian faith.

Euro-American scientific communion tended to exclude Indigenous knowledges and sciences. On the whole, even Humboldt's anti-imperialist science failed to change the way the transatlantic scientific community saw Native cultures as artifactual and historical rather than vital and ecological. Cooper's Episcopalian ecology often perpetuates her family's settler colonial history, though she does at times acknowledge that the Haudenosaunee people have a right to the land she studies so carefully. In the wake of the Revolutionary War, Susan's grandfather William Cooper seized on the ambiguity of land patents and treaties with Natives to shore up land near Lake Otsego and erect his "Cooperstown."[35] Susan Cooper benefited from

[35]. During the Revolutionary War, the Revolutionary armies sought to "obliterate all signs that the Iroquois had exercised dominion over the land" by destroying crops and Native villages in Otsego. Historian Alan Taylor explains how William Cooper exploited the "turmoil and opportunities of the American Revolution to supplant" the Indigenous people. Alan Taylor,

this settler-colonial history that was both human and ecological,[36] but she also registers some of its disturbing consequences. She presents the troubling facts of environmental change in the hope that the scientific community can persuade Americans against the reckless extermination of species and clear-cutting methods that disrupt entire ecosystems. As we will see, she makes proto-conservationist arguments by using religious language, a strategy that Humboldt avoided but which proved effective for Cooper. Seeking to inspire moral reformation, she orients her science toward health in and with nature. The irony is that the Haudenosaunee had lived in just this ecological way, as Chad Anderson has established, but Cooper rejects the possibility of learning from their living history.[37] Still, in attending to natural rhythms and patterns, she evokes a different, more sustainable vision than that of many of her white contemporaries, one that begins with depicting sacred natural history at Cooperstown and Lake Otsego.

Natural Observation and Scripture

Cooper's choice to set aside explicitly religious commentary at the beginning of *Rural Hours* signals her commitment to empirical fact in a Humboldtian sense. Natural theology had long taught that the facts of nature and the "facts" of Scripture could not contradict each other; it was human interpretations of the facts that created the conflict. The rhetoric of "Baconian philosophy," with its "declared greed for the object *fact*," pervaded early nineteenth-century

---

William Cooper's Town: Power and Persuasion on the Frontier of the Early American Republic (New York: Alfred A. Knopf, 1995), 39, 56.

[36]. "For centuries," Chad Anderson explains, "the Haudenosaunee had supported villages by farming corn, beans, and squash, tended by women, and by hunting and fishing, mostly undertaken by men," but settler colonists "transformed the complex ecology of Iroquoia's remaining forest into a landscape of Euro-American farms," clearing the forests for fields of wheat and corn and for pasture, and driving out predators such as wolves and mountain lions deemed dangerous to domestic animals. Chad L. Anderson, *The Storied Landscape of Iroquoia: History, Conquest, and Memory in the Native Northeast* (Lincoln: University of Nebraska Press, 2020), 49.

[37]. Anderson, 47–74.

America, but was beginning to show signs of strain by the 1840s.[38] Humboldtian science, however, revitalized empiricism for a new age. The Humboldtian scientist would start with facts—observed, measured, and collected in the field—and beyond merely arranging them in taxonomies, would use them to create a new interrelated vision of nature. According to Susan Faye Cannon, Humboldt "promoted worldwide observations not because of the intrinsic interest of a great many varied facts, but because he wanted general theories, and would not settle for the overly simple ones of the past based on generalizing merely local observations."[39] Cooper accentuates the numinous possibilities of natural facts in and of themselves, connected in ever-increasing scales, from the local to the regional and global. Episcopalian reasonableness enabled her to table religious commentary and focus first on natural facts, then circle back to Scripture with no apparent conflict between the two. In particular, she espouses a historical-literary hermeneutic that harmonizes empirical fact and Scripture.

Cooper establishes her empirical mode with an entry depicting a walk to the Susquehanna River, whose source is Lake Otsego. During the walk she spots three large waterfowl, which she at first she thinks are loons. It is too early for them, however; as she notes, they usually appear about the first of April. Cooper demonstrates that she has observed her region over multiple seasons and has probably cross-checked the return date of loons in other sources. While facts and record-keeping reveal her conjecture to be wrong, the possibility of loons directs her mind farther north, to Seneca Lake, where she recalls that fishermen have caught loons on set-lines dropped to the depth of ninety-five feet. One fact leads to another, as she then gives other

---

[38]. See Bozeman, *Protestants in an Age of Science*, 3; George H. Daniels, *American Science in the Age of Jackson* (New York: Columbia University Press, 1968), 102–17; Bowen, *Empiricism and Geographical Thought: From Francis Bacon to Alexander von Humboldt*.
[39]. Cannon, *Science in Culture*, 80.

examples of waterfowl diving in waters and walking along the bottom of rivers and lakes. Here she complements her own observations with facts from European observers: Charles Bonaparte has seen dippers in the Alps "haunting torrents and cataracts with perfect impunity, or running hither and thither along the stony bottom of more quiet streams" (5). These dippers, "wild and solitary creatures," then bring her entry home (5). Once thought to be unknown in North America, dippers, she notes, have recently been discovered in America, with slightly different markings from the European variety. Her entry concludes on this comparative observation, having progressed from a simple walk, through an inaccurate but well-informed conjecture, to a reflection on the biogeography of waterfowl. The through line from her own natural history study near Lake Otsego, further north to Seneca Lake, to Bonaparte in the Alps is Cooper's commitment to truth as shared by observers faithful to natural facts.

Cooper's remark that dippers live where humans cannot, in nests over mountain streams, also works to introduce a numinous world that exceeds human life and yet opens to humans if they study it carefully. As Eliade writes, drawing on Rudolf Otto's work, the numinous (from *numen*, god) presents itself as something "wholly other."[40] Again, while no explicitly religious commentary occurs in these opening entries, Cooper's fidelity to facts allows her to convey the natural world as a wondrous reality, in which loons wade ninety-five feet below the surface of Seneca Lake; dippers build nests over mountain streams; and their young, when alarmed, drop suddenly into the water below for safety. Having established her fidelity to empirical fact, Cooper first refers to Scripture on April 7 to resonate with nature's sacred life. The smell of evergreens reminds her of the fragrance of the cedars of Lebanon in the prophet Hosea, "who lived in the eighth century before the Christian era" (19). Providing the historical era of the

[40]. Eliade, *The Sacred and the Profane*, 9.

biblical passage gives Scripture an alterity that corresponds with the non-anthropocentric scheme she is developing. For Cooper, Scripture and nature align when the interpreter understands and respects their sacred distinction from mundane human experience.

Cooper recognizes that natural facts are not always consistent with anthropocentric notions of time. For her, nature's time is ecological and thus sacred. Spring's gradual arrival teaches observers to be "content to await the natural order of things," relying on field experience to shape their understanding of phenological change rather than assuming they can predict the season's events (13). The skunk-cabbage, for instance, "makes it way in the midst of snow and ice" and "makes a good guess at the time of year," and robins return sometime between the "fifteenth and twenty-first" of March (9, 10). She notes that the thawing of the lake, which never occurs on the exact same date, often determines when new growth begins, while its freezing clinches the winter season. In spring, a high wind "will work upon [the frozen lake] like magic, dashing it into fragments, and piling it on the shores, where it vanishes in a very short time" (18). Subtly, she imparts a sense of the climatic and geological forces that undergird seasonal change. Working like "magic," the broader facts of climate and geology are sacred in that they are only partially knowable to humans and suggest different spatial-temporal scales beyond the human. She comments that ice on Lake Otsego seems to "mak[e] a climate of its own," while the land's topography ensures that melting snow and ice run off into swollen streams "toward the seas" (10). Later she explores the origins of the biblical phrase "everlasting hills" in order to claim that "the lowly hills about us are but the last surges of a billowy sea of ridges stretching hundreds of miles to the southward" (154). Placing facts in contexts of non-anthropocentric time and space, Cooper emphasizes that natural life participates in earth's larger mysteries that are sacred in their historical grandeur and self-organizing capacity.

Cooper emphasizes nature's beauty and harmony as these attributes arise through seasonal, ecological developments. Humboldt believed that aesthetics could play a crucial role in the new science: the naturalist might use artistic forms to show how facts cohered in ecological harmonies.[41] We might say that Cooper's science is, as Luciano writes in another context, an "invested inquiry that exceeds and redirects the empirical."[42] For Cooper, facts cohere in sacred holistic views, especially at the height of spring and summer, and a respect for this beauty, in turn, orients the scientific act of perception.

In particular, flowers index nature's sacred beauty. Cooper describes wildflowers and garden flowers undergoing their spring change. First, the hyacinths, daffodils, and the common lilies begin to show their leaves. Then snowdrops open in mid-April, and these flowers lead her to reference the botanist Alphonse de Condolle, whose *Géographie botanique raisonnée* (1855) had a strong influence on Darwin and Harvard botanist Asa Gray. She notes that Condolle found snowdrops "on the mountains of Switzerland with its flowers actually encased in snow and ice" (12). Invoking Condolle's comparative plant geography, Cooper establishes her own intent to compare seasons and species across continents while also keeping within range of a familiar domestic context. And even more so than in Condolle's work, her natural science stresses beauty, snowdrops encased in ice, a marvelous image that conveys nature's rarefied sacrality. Likewise, one of her two direct references to Humboldt in *Rural Hours* concerns wild roses: "M. de Humboldt mentions that in his travels in South America he never saw one, even in the higher and cooler regions" (75).[43] In her own region, the wild roses bloom in summer, having a "grace

---

[41]. Richards, *The Romantic Conception of Life*, 518–21.
[42]. Luciano, "Romancing the Trace: Edward Hitchcock's Speculative Ichnology," 98.
[43]. Her second reference to Humboldt, taken from his *Personal Narrative*, concerns South American place names: "M. Von Humboldt observes that Mantanzas, *massacre*, and Vittoria, *victory*, are frequently scattered over the Spanish colonies" (302). Here she does not comment on

all their own" (75). She says that gardeners who clip the wild rose of its foliage rob the plant of this "grace," a word she gleans from her Episcopalian tradition in which grace signifies not the Calvinist "unmerited divine favor" but primarily the sacramental regeneration of infant baptism.[44] Cooper insists that humans should let nature retain its native, "all its own" grace, suggesting a synergy between the natural and divine. Left alone to flourish, the rose manifests itself as a sacramental handiwork.

In a late spring entry, Cooper walks through the deep woods and balances close attention to particular species with a view of the sacred interconnectedness of all living things. Without using explicitly religious language, she gathers the particulars in a holistic vision that reflects spring's resurrection:

> [W]e behold life and beauty awakening there in every object; the varied foliage clothing in tender wreaths every naked branch, the pale mosses reviving, a thousand young plants arising above the blighted herbage of last year in cheerful succession, and ten thousand sweet flowers standing in modest beauty, where, awhile since, all was dull and lifeless.
>
> Violets are found everywhere, the moose-flowers are increasing in numbers; young strawberry blossoms promise a fine crop of fruit; the whortleberry-cups are hanging thickly on their low branches, and the early elders are showing their dark, chocolate flower-buds, which we should never expect to open white. The ferns are also unrolling their long-colored fans. We gathered some ground laurel, but the squirrel-cups are forming their seed. (44-45)

---

the tragedies of imperialism, but she notes "there are many reasons for preserving every Indian name which can be accurately placed" (303).

[44]. Holifield, *Theology in America*, 248–50.

She illustrates, with striking precision, the variety and abundance of life in the forest in mid-May. Her unassuming style might cause us to overlook the scientific labor necessary to write this layered scene. In this entry she gathers ground laurel, and on a later walk, she breaks open a piece of decayed wood from the dead trunk of a tree and finds a coiled snake (54). A few days later, she rows the lake for a wider observational view of the hills and fields in spring, and then collects dragon arum, violets, and a branch of wild cherry to take home (55). Her scenes of beauty and harmony are the result of her scientific study of nature, in a Humboldtian sense: she collects, measures, and connects to accumulate the data in a new holistic description.

Cooper also employs biogeography to trace how natural history forms across spatial-temporal scales. She perceives that her region's beauty and economical harmony connects to the globe through species' migration and habitat ranges shaped by geological epochs. In one entry, she notes that the slender mitella is "one of the plants we have in common with Northern Asia"; in another, she emphasizes the range of poplars, which "through their different varieties, appear to stretch far over the globe, some being found in the heart of the warm countries of Southern Europe and Asia, others on the skirts of the Arctic regions" (53, 43). Humboldt emphasized plant geography in the *Cosmos* introduction, where he said he was expanding the findings of his 1807 *Essai sur la géographie des plantes* to describe the inner workings of all nature, not just plants.[45] For Humboldt and Cooper, biogeography helps explain how species associate and gradually coalesce into ecological wholes.

Cooper's use of biogeography prompts a domestic metaphor that, while not explicitly religious, suggests an overarching, divine connection across life zones and human cultures. After

[45]. Humboldt, *Cosmos*, 1997, 1:60–61; Jackson, "Introduction: Humboldt, Ecology, and the Cosmos."

comparing the May-apples of North America to those of central Asia, she states: "One likes to trace these links, connecting lands and races so far apart, reminding us, as they do, that the earth is the common home of all" (56). Her metaphor proleptically relates to *oecologie*, which Ernest Haeckel derived from the Greek "*oikos*," or household, in his 1866 coinage for a new science of interrelationships.[46] Creatures and their environments constitute a grand community, linked together on a vast scale in the global *oikos.* From her perspective, however, the *oikos* is a divinely-sustained harmony over which the triune God presides. In her private devotional journal, she repeatedly cites the *Gloria Patri*, a doxology from the Prayer Book: "Glory be to the Father, and to the Son, and to the Holy Ghost, *as it was in the beginning, is now, and ever shall be, world without end*."[47] *Rural Hours* emphasizes how an unchanging divine power presides over the *oikos* and enables relations and interconnections in the creational household.

In some passages, Cooper connects nature's beauty and harmony to Scripture more directly. Recently harvested wheat fields reminds her of Ruth, and she pursues a reading of the sacred text that, in turn, nourishes her scientific-aesthetic practice. Her August 21 entry showcases her awareness of the Higher Criticism and suggests that beauty and harmony are natural values derived from ancient history that remain relevant in her day. The harvested fields initiate the Ruth homily: she observes that America lacks a tradition of gleaning, where the poor gather what farmers have left behind in adherence to the Mosaic law. This "simple form of charity, natural to a primitive age" reminds her of Ruth, a "beautiful" narrative of "sacred history," "delightful as a composition" (160). This idealization of primitive cultures evokes Herder and other Romantic interpreters of Scripture. As Stephen Prickett explains, early

---

[46]. Worster, *Nature's Economy*, 192, 202–4.
[47]. Emphasis added. Pages 27, 31, 32, and 107 of the transcription. See footnote 21 for complete manuscript citation.

nineteenth-century Romantics—Herder and Eichorn, but also Goethe and Schleiermacher—turned "from typological to narrative readings of the Bible" and initiated a "radical re-appropriation of the past as 'history' for the first time in the modern sense."[48] For these interpreters, the Bible became primarily a means to narrate the anthropological history of primitive human beginnings to the modern age, and, as a result, they were less interested in the conventional theological dogmas of Scripture.

Cooper argues that Ruth's distinctive historical-literary qualities can help rebut Enlightenment-inflected objections to Scripture. She notes that Voltaire had claimed that Ruth's lying down at the feet of Boaz at night was scandalous behavior, but she counters that Ruth's actions are "highly figurative," related through common Hebrew idioms associated with the kinsman-redeemer tradition (163). Here Cooper doubly defends the sacred text: in addition to Ruth's actions and words, the Hebrew's simple figurative style secures her virtue (33). And directly because of this natural virtue permeating the text, "the Book of Ruth has always been received by the Church, both Jewish and Christian, as part of the inspired Scriptures" (164). Cooper provides a surprising affirmation of Judaism as the "Church," the people of God, a point rarely affirmed by nineteenth-century Protestants, and she emphasizes that the primitive tradition of gleaning and the literary representation of Ruth's virtue are what make her character particularly appropriate as a typology for the Virgin Mary. In other words, sacred history gains renewed credibility as it participates in the sacrality of natural history.

Cooper then compares her interpretation of the text with the options available to a more skeptical reader to suggest that history provides a certain distance to admire Ruth as a historical-

---

[48]. Stephen Prickett, *Origins of Narrative: The Romantic Appropriation of the Bible* (Cambridge: Cambridge University Press, 1996), 155.

literary composition. She outlines three interpretive options. One can say that Ruth is true, in which case the reader is at least compelled accept the facts of nature as presented in the text. One can call it a "compound of fiction and truth," so that those passages agreeing with other parts of Scripture are affirmed and others the reader is "at liberty to doubt." Or one can contend it is "wholly fictitious," but even if that is the case, the "infidel" still has to admit that it is "delightful as a composition" (160). She concludes that the best option is read the story as a literary artifact and investigate, as she does, whether it holds up as history, in particular, as *natural* history. For her, Ruth manifests an ancient pastoral way of life that Americans might learn to imitate:

> While plodding along on our daily round of duties, if the eye falls by chance upon a picture of some great old master, we gladly linger for a moment to enjoy its beauty and excellence; and thus the noble devotion of Ruth, seen amid the ancient frame-work of the sacred historian, never fails to delight the imagination, to refresh the mind, to strength the heart. (166)

The sacred text and its basis in nature thus stir her imagination. In foregrounding natural science and enriching her account with a historical-literary hermeneutic of Scripture, Cooper reveals the sacred in conventional ways but also pushes beyond doctrine alone to convey new views of the sacred enabled by Humboldtian scientific modes and historical scholarship of the Bible.

In another entry, Cooper reads natural history into Psalm 137 and suggests that current English translations are inaccurate to the natural facts. She observes that most translations of Psalm 137:2 imply that the willows of Babylon (the Israelites "hanged our harps upon the willows") were weeping willows, which were not native to the Babylonian region. Using lexicons and travel accounts, Cooper holds that they were probably gray ozier willows, a species known to have grown in the region since the time of the great empire. This new possibility

disrupts two common translations, that in Psalter of the Prayer Book and in the King James Version. The first uses "trees," and although the second "approaches nearer to the simple dignity of the Hebrew," the more specific "willow" for English readers brings to mind the wrong species (33). Her historical-literary hermeneutic thus calls for a fresh translation: "we learn with interest from the traveler, that besides her [Babylon's] shapeless ruins, stand the 'gray ozier willows, on which the captives of Israel hung up their harps;' mute and humble witnesses of the surrounding desolation" (33). While perhaps more prosaic, her rendering centers on the ozier willow as a natural monument in which the meaning of Scripture can be rediscovered and shared by Christians, historians, and naturalists alike. As she points out, the Persians conquered Babylon, thereby bringing liberation to the Israelites, but the ozier willows have outlasted the rise and fall of empires. In this way, the passage carries instruction for her own time: nature endures, and cultures ought to learn from such natural monuments. To perceive such evocative monuments (including what they implied about nonwhite, supposedly primitive races), Cooper cultivates wonder.

Natural Wonder

With Humboldt's aesthetic science of interconnections, the affect of wonder acquired powerful new significance deriving from its religious and philosophical roots. The English word comes from the Old English *wundor*, which the *OED* defines as a particular object or deed that "causes astonishment." By 1290, wonder also referred to the emotion itself: for example, the Geneva Bible translation of Luke 5:26 ("and greet wondir took alle men") and later, the King James translation of Acts 3:10 ("They were filled with wonder and amazement at that which had happened upon him").[49] Greek philosophers had spoken of two kinds of *thaumazein*, wonder,

[49]. "Wonder, n.," in *OED Online* (Oxford University Press, June 2020).

that humans experience. The first is the child's innocent and trusting enthusiasm for the world; the second, which many experience after a period of critical suspicion, occurs as David Bentley Hart calls "an instant of naïve surprise before the mystery of being." Hart builds on the connotations of wonder suggested by *thaumazein*, which Plato and Aristotle identified as the starting point for all philosophy, to define this second, more philosophically complex kind of wonder as a "sudden fleeting moment of limpid awareness" at the "sheer fortuity and givenness of the world."[50] This matured wonder is not escapist; rather, it "awakens us to the love of wisdom."[51] Both the object and the affect definitions also contain the possibility of "perplexity or bewildered curiosity" and even fear, rather than a purely joyous state.[52]

Hart discusses wonder in the context of establishing "where the consonance really lies" between contemporary theology and science, as his essay's title has it, but prior to the full-blown development of the academic sciences in the latter half of the nineteenth century, the connection between theological and scientific wonder remained intact. In contrast to the common modern assumption that wonder and its corollary, enchantment, are "secular" or potentially "quasi-pagan," "push[ing] against a powerful and versatile Western tradition . . . that makes enchantment depend on a divine creator," *Cosmos*-inflected wonder did not draw such strong distinctions.[53] Although Humboldt reflected a new nonreligious approach to nature, writers like Cooper show that religion and the secular continued to develop alongside each other. Humboldt encouraged an empiricism that would include the emotions, the human mind and spirit responding to the beautiful influx of particulars. As he wrote, "all that the senses can but

---

[50]. David Bentley Hart, "Where the Consonance Really Lies," in *Theological Territories: A David Bentley Hart Digest* (Notre Dame, IN: University of Notre Dame Press, 2020), 123.
[51]. Hart, 124.
[52]. "Wonder, n."
[53]. Bennett, *The Enchantment of Modern Life*, 12.

imperfectly comprehend, all that is most awful in such romantic scenes of nature, may become a source of enjoyment to man, by opening a wide field to the creative powers of the imagination."[54] Nineteenth-century naturalists understood wonder to signify the object or assemblage that arrests attention *and* the state of emotion in which time and body feel suspended. In the same era, wonders and wonder and their cognates (awe, astonishment, marvel) could still refer to miracles, supernatural events, or states of amazement before the divine. In nineteenth-century nature writing, such theological resonances suggested a deeper connection to nature, the feeling that one was temporarily experiencing the natural world in the fullness of its sacred existence.

Cooper cultivates a theological-scientific wonder that progresses into nature's intricate web. For example, the fall colors, in a "moment chosen by Autumn" that will be followed in a few days by a "sharper frost," bring about "wonder and delight" at a "natural spectacle, great and beautiful, beyond the reach of any human means" (31). Cooper's non-anthropocentric emphasis ("beyond the reach of any human means") establishes wonder as something more than just a subjective state; the human observer expects but does not produce this sense of wonder on her own. Elsewhere Cooper notes that the activity of chimney swifts "is wonderful": these birds hardly seem to rest at all, and "how they provide twigs for their nests, one would like to know, for they are never observed looking for their materials on the ground, or about trees;— probably they pick them up as they skim the earth" (35). Wonder leads to a richer knowledge of creaturely activity, while leaving room for mystery. As she tracks phenomena over years and not just seasons, Cooper's natural wonder ranges from joyful amazement to fearful astonishment. Deer have disappeared from the woods near Signal-Oak Point "with wonderful rapidity" (149). This

---

[54]. Humboldt, *Cosmos*, 1997, 1:26.

grove of signal-oaks was "wantonly destroyed" by "kindling fires against their trunks, using them as chimney shafts, which of course must destroy them"; the grove "is but a wreck of what it was" (149). Wonder here indexes a state of uncertainty arising from the effects of the human degradation of nature. An even older definition of wonder carried a malevolent meaning similar to Cooper's "wonderful rapidity": wonder could refer to a "evil or shameful act" or an act of "destruction and disaster," though by the fifteenth century, this specific meaning was obsolete.[55]

In an extended reflection on the old forest, Cooper creatively registers the positive and more foreboding connotations of wonder. She portrays the old woods as one interlocking ecosystem. The forest turns the observer away from "the glitter and turmoil of the world of man" toward a vast world of nature that surpasses a single human lifespan (125). In the "bosom of the woods," every natural object communicates to the human mind "in silent consciousness that it stands alone with the works of God" (125). Each object has dignity: they were "called into being by the will of the Creator, as we now behold them, full of wisdom and goodness," even the "dullest insects crawling about these roots," and the shreds of last year's leaves scattered on the forest herbs "in a blessing of fertility" (125-126). The "perpetual presence of death" gives an "impression calm, solemn, almost religious in character" (127). She characterizes death in the forest as "almost religious" because, like a funeral ceremony, nature's deaths provoke wonder, a momentary awareness of the brief life and ultimate fate of all things. Every object in the forest has a "deeper merit than our wonder can fathom" (126-127). Wonder draws her to nature's particular merits, while the lifespans and deaths of the forest enlarge her awe beyond singular objects.

---

[55]. "Wonder, n.," defs. I.5a, I.5b.

Wonder then drives her to reflect on natural history and propose an ethical vision of forest conservation. As she details the forest's natural history, she discloses wonder's alternative connotation as something that causes apprehension. The trees, as the oldest living objects, have drawn from and nourished the whole system. The area once coalesced in a single forest form: "These hills, and the valleys at their feet, lay for untold centuries one vast forest" (127). But where the pines, hemlock, and balsam once ran through ravines; where oak, maple, and chestnut once populated knolls; and where the birch, elm, and aspen once covered the mountains, "sixty years have worked a wonderful change; the forest has fallen upon the lowlands; and there is not a valley about us which has not been opened" (127-8). Much depends on what she means here by "wonderful." The subsequent sentence implies apprehension: "Another half century may find the country bleak and bare" (128). Landowners are seeking to turn their trees "into bank-notes with all possible speed," and, as a result, the old woods may soon be eradicated (132). On the subject of Cooper's proto-conservationism, Walls succinctly says that her "solution was knowledge": Cooper thought the more Americans know about their surroundings, the more likely they will be to take care of nature.[56] But beyond knowledge, Cooper's practice of Humboldtian science entailed a creative sense of theological wonder. Wonder helps her negotiate the myriad registers of the sacred in nature and allows her to express amazement and dismay, often in the same passage, and she uses these affects to condemn specific instances of improvidence.

At the same time, Cooper considers wonder the appropriate response to the forest's resilience. On a prostrate trunk of a fallen pine or chestnut, she sees a "stout tree, of perhaps twenty years' growth, which has sprung from a chance seed," the roots of which have "stretched down the side of the mouldering log, and reached the earth on both sides, thus holding the

---

[56]. Walls, *The Passage to Cosmos*, 286.

crumbling skeleton firmly in its young embrace" (128). This romantic image in which death and life embrace each other is not merely figurative but richly ecological, dependent on close analysis of life forms and their interrelated natural histories. Later she invokes the emerging scientific concept of succession, if not in the modern ecological sense, at least in terms of how new growth occurs at a level often imperceptible to humans unprepared to notice it. "Young thrifty pines [are] seen in every direction"; they "shoot up even in the cleared fields," and where old pine woods have been cut down, "young trees of the same kind have succeeded them" (129). Although Henry David Thoreau would get closer to the modern ecological understanding in his observations of how pine succeeds oak (and vice versa) and his conclusions that species work in tandem toward ecological balances, Cooper emphasizes how "the same kind" of species succeed each other.[57] But even new growth of the same kind needs an attentive eye to see it, to experience wonder at the "caprices of the forest world": young trees grown light and airy because they are surrounded and supported by their older kind; others that never regain their upright position after a heavy snow; or two trees accidentally bending toward each other to form a natural archway (131). To a certain extent, her examples of resilience provoke wonder because they imply a sense of accident in nature, though for Cooper such accidents can be reconciled with divine Providence. For her, the divine operates through and above accident in nature, and she contrasts this sacred method to the willful choices some landowners have made to harvest the timber in complete disregard of ecological stability. The woods' sacred caprice therefore stands in judgment of human willfulness.

---

[57]. Henry David Thoreau, "An Address on the Succession of Forest Trees [1860]," in *Excursions*, ed. Joseph J. Moldenhauer, The Writings of Henry D. Thoreau (Princeton, NJ: Princeton University Press, 2007), 165–83.

For Cooper, a respect for caprice through a matured sense of wonder might lead landowners to approach the forest in a new, sustainable way. Toward the entry's end, she gives a string of examples of how to conserve the forest within a scheme of ecological holism:

> Thinning the woods and not blasting them; clearing only such ground as is marked for immediate tillage; preserving the wood on the hill-tops and rough side-hills; encouraging a coppice on this or that knoll; permitting bushes and young trees to grow at will along the brooks and water-courses; sowing, if need be, a grove on the bank of the pool, such as are found on many of our farms; sparing an elm or two about the spring, with a willow also to overhang the well; planting one or two chestnuts, or oaks, or beeches, near the gates or bars; leaving a few others scattered about every field to shade the cattle in summer, as is frequently done, and setting out others in groups, or singly, to shade the house—how little would be the labor or expense required to accomplish all this, and desirable would be the result! (134)

In adhering to this proto-conservationist ethic, Americans would regain a spirit of "thankfulness" for the "Almighty economy" that deigns to "work progressive renovation in the humblest objects" (134). With "economy," Cooper again connects with the etymological history of ecology, as in Linnaeus's "The Oeconomy of Nature" (1749).[58] And with thankfulness, she goes where Humboldt was reluctant to go in using religious language to inspire moral reformation.

In a set piece on weeds, Cooper studies evidence of the particular settler-colonial histories that have disturbed nature's equilibriums. She finds herself amazed as she examines the vast impact of European settlement. The burdock, nettle, and thistle grow up under fences, and

[58]. Worster, *Nature's Economy*, 33–41.

the chickweed and purslane appear in paths and threaten garden beds (64). On June 6 she notes how these weeds and naturalized plants do damage in the garden but also in the field, where corn-cockle springs up among the wheat, and St. John's wort is poisonous to cattle. "Entirely unknown to the red man, having been introduced by the European race," these weeds now threaten to upend entire indigenous ecosystems (65). The forces of nature compound the spread of nonnatives species, as when she locates evidence that their seeds have floated across the lake. Biogeography and species' dispersion reveal the myriad ways that Europeans have disrupted nature and will continue to do so until they learn to cherish natural health. Such nonnative weeds intrude on the "primitive forest"; they line the roads and fences as "the first natural produce of the soil" where Europeans have settled (66-67). She compares the situation to the biblical parable of the wheat and tares, the evil growing alongside the good, but admits that this particular evil may continue to spread. With "patient care and toil" one might keep out the unwanted weeds from the garden, but they will continue to spread elsewhere (66).

"Native" conveys her hope that local knowledges of flora and fauna will begin to take hold in the national imagination, but these scientific knowledges sometimes came at the expense of Haudenosaunee living in her region and in disregard for their Indigenous histories. Cooper acknowledges that many of the names for species and places originate with Indigenous cultures, but she also tends to reinforce a narrative wherein European Christian civilization replaces that of Native Americans. Her July 17 entry is especially egregious: even as she recognizes that the land "was so lately their own," the Oneida basket weavers who visit her doorstep "strike us strangely, appearing as they do in the midst of a civilized community with the characteristics of their wild race still clinging to them" (108). She presents them as degenerate, "the remnant of the great tribes of Iroquois" that now have the "stamp of vice" (109). Her visit to their nearby camp

confirms that the men are mostly "worthless, drinking idlers," and a young boy is one of "the most uncouth, impish-looking creatures we ever beheld" (110). The women are likewise degraded, though to her they seem to have some advantage over the men in this "half-civilized condition" (111).

Even so, Cooper's approach sometimes entails greater historical specificity in regard to the European impact on nature and Indigenous histories, and she sometimes recognizes the depths of Indigenous life unknown to her. "It is easy to wish these poor people well; but surely something more may justly be required of us—of those who have taken their country and their place on the earth" (112). Here she detects an ineluctable connection between the Indigenous peoples' valid claims on the land and the European treatment of ecosystems. Through her ecological science, she links this "something more required of us," Europeans who have taken the Haudenosaunee's land, to the shared destiny of "lands and races" dependent on "the earth . . . the common home of all" (56). The Natives must surely gaze "in wonder upon their former hunting-grounds in its altered aspect" (119), wonder evoking a shared ecological tragedy. Her communion epistemology acknowledges, though hardly begins to redress, the imperialist violence committed against both nature and Indigenous peoples. She details the one Haudenosaunee tradition she knows, that of Council Rock, the smooth, partially submerged rock near the lake shore that might have been a common rendezvous spot. Indeed, Lake Otsego's name draws on the Mohawk and Oneida words for rock (*otsteaha* and *otsta*, respectively) to signify this Council Rock.[59] The irony, then, is that Cooper's scientific-literary communion takes

[59]. William Martin Beauchamp, *Aboriginal Place Names of New York* (Albany, NY: New York State Education Department, 1907), 174.

place on the very location where a more literal communion may have occurred regularly for the Haudenosaunee people until they were forced from the land.

Ultimately, Cooper worries that Americans are not troubled enough by ecological degradation, and she aspires to share her observations with a community of scientists who will together promote natural flourishing. In one of her final entries, she observes footprints on the frozen lake and reflects on "what different tracks were seen here only seventy years since" (310). She proceeds to catalogue quadrupeds that have disappeared or were disappearing from her region. Many animals "have been generally driven out of the southern and eastern counties"; their numbers are greatly reduced, even if some "may yet be found within the limits of the present State" (311). Her list of species gone or in decline is disheartening, and surely resonates with the twenty-first-century reader: the bear, wolf, fox, beaver ("extremely rare") and otter ("very rare indeed") (312). In other entries she mentions the moose, panther, quail, grouse, and passenger pigeon. "Probably many of the species," she grimly concludes, "will entirely disappear from our woods and hills, in the course of the next century" (314). Cooper's sense of wonder here is ambivalent and increasingly troubled in terms of how Euro-Americans have disrupted ecological balances. But throughout *Rural Hours*, the seasons' cycles are grounds for a hope she works to realize through her natural science. Through faithful study of sacred particulars, she encourages moral concern for the whole of nature.

The Reception and Impact of *Rural Hours*

Nineteenth-century reviewers praised Cooper's observational precision, though only a few understood *Rural Hours*' achievement in terms of natural science. Most consigned her book to the category of women's nature books having "an earnest and holy spirit and true aim,

inconsistent with a petty love of display."[60] *The North American Review* claimed to have "seldom met with a more charming book," "charming" a gender-inflected term that robs her of scientific legitimacy.[61] As Johnson notes, amateur botanizing and recording of natural history were common practices for women in mid-nineteenth-century America, but a woman pursuing geology, biogeography, and species' competition on the cusp of US professional, specialized science was rare indeed, and, I might add, still likely to be misunderstood.[62] Perhaps her self-effacing prose style has made it easy to overlook the physical and intellectual labor necessary to write her descriptions of nature: she explores, collects, and measures, and connects her findings to the burgeoning scientific network that she effectively reconstructs through her wide reading of natural science.

A few nineteenth-century scientists did recognize *Rural Hours*' scientific contributions. In 1862, Charles Darwin wrote to the American botanist Asa Gray about Cooper:

> Talking of Books, I am in middle of one which pleases me, though it is very innocent food, viz "Miss Cooper's Journal of a Naturalist". *Who is she*? She seems a very clever woman & gives a capital account of the battle between *our* & *your* weeds.[63]

Referring to *Rural Hours* by its English title, Darwin praises one of the book's key passages. Despite his condescension, he seems to recognize that she was dealing with a subject that had been of special interest to him in his studies leading to *Origin of Species* (1859): how species

---

60. "[Review of *Rural Hours*, by Susan Fenimore Cooper]," *The North American Review* 72, no. 150 (January 1851): 171. For more on the contemporary reviews, see Johnson, *Passions for Nature*, 52–57.
61. "[Review of *Rural Hours*, by Susan Fenimore Cooper]," 171.
62. Johnson, *Passions for Nature*, 43–45.
63. Charles Darwin, "Letter No. 3796," November 6, 1862, Darwin Correspondence Project, www.darwinproject.ac.uk/letter/DCP-LETT-1999.xml.

dispersed across the globe and the mechanism by which they continued to interact and develop in a given area. The power of *Origin* consisted partly in Darwin's deft, almost casual ability to shift between varying scales of place and of time, from individual organisms and brief lifespans to whole continents and geological epochs. But this pattern prevails in *Rural Hours,* too: Cooper begins by observing a particular natural object or phenomenon, then places it in the larger context of the season and the region's environmental and geological history, and throughout, comments on the sacred resonances of these ever-expanding contexts. In this mode, *Rural Hours* balances scientific accuracy and religious meditation in what Darwin identified as a "capital" account. Although the date of Darwin's letter argues against direct influence on *Origin,* they both learned a style (perhaps from Humboldt's example) that negotiated the familiar and more expansive domains of nature.

Cooper's book may also have influenced Thoreau's *Walden* (1854). Her book seems to have appealed to him in the time that Thoreau scholars identify as his turn to empirical science, in the early 1850s. Although he had been fascinated with loons since at least his first nature essay, "Natural History of Massachusetts" (1842), in 1852 he specifically cites Cooper's fact about loons caught in Seneca Lake in his Journal, where he names her: "A newspaper authority says a fisherman giving his name has caught loon in Seneca Lake NY 80 feet beneath the surface with hooks set for trout. Miss Cooper had said the same." Revising this journal entry for *Walden,* where a devious loon seems to mock and beguile him on the pond, he expunges Cooper's name and credits a newspaper article instead, where she may have verified her original fact.[64] Readers of *Walden* will perhaps recognize other parallel details between Cooper's Lake Otsego and

[64]. Thoreau, *Journal,* 5.368; Henry David Thoreau, *Walden*, ed. J. Lyndon Shanley, The Writings of Henry D. Thoreau (Princeton, NJ: Princeton University Press, 2004), 235.

Thoreau's Walden Pond, yet what binds them together is the big picture, their practice of ecological science. And, despite very differences in religious background and temperament, both sought theological meaning in the natural world.

Cooper's proto-conservationism prefigured early environmental texts, such as George Perkins Marsh's *Man and Nature: or, Physical Geography as Modified by Human Action* (1864), which had a religious basis for the argument against global ecological destruction.[65] *Rural Hours* belongs alongside these early texts and with them complicates the telos of a modern environmentalism that starts to shed religion in the nineteenth century. Her sacred observational practice involved principles and affects that many environmental scientists continue to espouse today: the connection between the individual observer and the larger community of naturalists; fidelity to empirical fact; respect for nature's complex beauty and harmony; and a sense of wonder. Her Episcopalianism and knowledge of Humboldtian science informed how she perceived the sacred field of nature, and this blending of science and religion helped her develop a moral case for environmental conservation. For her, protecting a meadow begins with understanding it. To see the meadow well, she bends down in a prayer-like posture and is present when the blue violets appear in May, the red strawberries in June: "A meadow is a delicate embroidery in colors, which you must examine closely to understand all its merits; the nearer you are, the better" (76).

[65]. Mark Stoll discusses Marsh's Congregationalism in *Inherit the Holy Mountain: Religion and the Rise of American Environmentalism* (New York: Oxford University Press, 2015), 87–89.

Chapter 3

These Objects Make a World: Henry David Thoreau's Liberal Protestant Nature Writings

Henry David Thoreau's career coincided with a transitional moment in US natural science. In the 1840s colleges including Thoreau's alma mater, Harvard College, began to hire professionals with specialized credentials to teach advanced science courses and spearhead projects that would have a wide impact on US natural science. In 1848 the Association for the Advanced of American Science was formed to unify the growing number of US naturalists who were contributing to scientific knowledge, many of whom had made science their livelihood: they held professorships, curated museums, led exploring expeditions, and edited scientific journals.[1] In this time, many US scientists were asking questions about the natural world's origin, geological transformations, and life distribution. Alexander von Humboldt's *Cosmos* (1845-1859), the most popular scientific text of the midcentury, spoke to these questions while managing to appeal both to specialized readers and more general readers interested in scientific ideas, such as Thoreau.[2] *Cosmos* and other midcentury scientific texts inspired revisions of natural theology, the tradition of finding God in nature and reconciling new science with theism. Thoreau corresponded with US scientists, and he was a member of the Association for the Advancement of American Science the year of 1853. Less understood, however, is how he integrated and appropriated the new, Humboldtian-inflected natural theology.

Some Thoreau scholars perceive natural theology as old-fashioned and irrelevant to science even in the mid-nineteenth century. This perception is unfortunate. For some, the term

---

[1]. See "The Pursuit of Science in America, 1815-1845," in Daniels, *American Science in the Age of Jackson*, 6–33.
[2]. See Dettelbach, "Humboldtian Science," esp. 295-304; Walls, *The Passage to Cosmos*, 214–34.

evokes Anglican clergyman William Paley's *Natural Theology* (1802), a text that never stops insisting there is no "contrivance" in nature without a "Contriver"; for others, natural theology calls to mind a more pastoral mode of nature history such as that in Gilbert White's *Natural History of Selbourne* (1789), a book Thoreau admired but whose leisurely approach new scientific norms and methods would seem to eclipse. Many Thoreau scholars associate natural theology specifically with Harvard zoologist Louis Agassiz, whose polygenetic view of race contributed to the racist American School of Ethnology. Scholars often pit Thoreau's writings against Agassiz's "typological creationism" and his soon-to-be discredited notion of species as stable, eternal "Divine thoughts."[3] Even when Thoreau scholars recognize that this emphasis on Agassiz has its drawbacks, they often continue to use natural theology as a foil against Thoreau's Transcendental, presciently ecological, and potentially more materialistic view of nature. Thoreau resisted simplistic correspondences between religion and science, but a strong contrast between him and natural theology is misleading. To elaborate with one recent example from a book that has proven immensely helpful to this study: in her *Bird Relics: Grief and Vitalism in Thoreau* (2016), Branka Arsić rightly observes that overemphasizing Agassiz has led scholars to overlook other Harvard scientists and assume that "most geologists and paleontologists were catastrophists like him." Yet later she contrasts Thoreau's vitalism with the "dualistic ontology" of "New Englanders" who held to "the Christian denigration of matter and belief in purely spiritual resurrections." While some Boston Unitarians subscribed to a matter-spirit dualism, the Unitarian tradition contained diverse opinions about matter and death, as my analysis of Thoreau and resurrection will show, and as Arsić's study also proves in her group of "Harvard vitalists,"

[3]. Robert D. Richardson, *Henry Thoreau: A Life of the Mind* (Berkeley, CA: University of California Press, 1986), 368; Agassiz, *Essay on Classification*, 136.

many of whom were Unitarian or at least liberal Protestant, though she does not discuss this theological component.[4]

This chapter examines how Thoreau's nature writings participate in the midcentury transformation of natural theology among liberal Protestants who integrated new historical scholarship of the Bible and prioritized Jesus' ethical teachings in the Gospels over his atoning sacrifice. Liberal Protestant natural theology passed through the challenge *Cosmos* presented to a theistic perspective to imagine "the religiousness that remains in modernity."[5] This natural theology was more flexible and nuanced than scholars have supposed, and its terms and tropes proved amenable to a variety of dispositions, from the showman Agassiz to the more recalcitrant Thoreau. Characterizing Thoreau's writings in the 1850s as agnostic, ateleological, or incipiently Darwinian eschews his vivid theological content that he harmonizes with new science. In *Walden* (1854), for instance, he announces that "There is nowhere recorded a simple and irrepressible satisfaction with the gift of life, any memorable praise of God" and proceeds to provide a new expression of praise in the dynamic natural world he experiences at Walden Pond.[6] As I will show, Thoreau's Unitarian upbringing, Harvard education, and continuing affiliation with liberal Protestant scientists inform *Walden*, a liberal Protestant natural theology text, as well as his

---

[4]. Branka Arsić, *Bird Relics: Grief and Vitalism in Thoreau* (Cambridge, MA: Harvard University Press, 2016), 134, 333. Laura Dassow Walls has pointed out that "Baconian theologians" incorporated Humboldt "within their religious framework," but she too pits Thoreau against "the terms set by traditional natural theology." That qualifier of "traditional" is specifically where I expand on her claims regarding Humboldt to argue that a reconfigured liberal Protestant natural theology arose in his wake. Laura Dassow Walls, *Seeing New Worlds: Henry David Thoreau and Nineteenth-Century Natural Science* (Madison, WI: University of Wisconsin Press, 1995), 77, 168. Additional examples of using natural theology as a foil include Robert Sattelmeyer, *Thoreau's Reading: A Study in Intellectual History* (Princeton, NJ: Princeton University Press, 1988), 80–90; Thorson, *Walden's Shore*, 21 ff.

[5]. Branch, "Postsecular Studies," 94.

[6]. Thoreau, *Walden*, 78. Hereafter cited parenthetically as *Wa*.

Journal and most widely read work in his lifetime, "An Address on the Succession of Forest Trees" (1860).

Ralph Waldo Emerson's pantheism also played a major role in Thoreau's post-Harvard development and set him on a course to write what is arguably a paradigmatic Transcendental text, *Walden*. Yet in his Journal Thoreau professed to being not just a "transcendentalist" but also "a mystic" and "a natural philosopher to boot," the latter an older vocational term that entails natural theology premises.[7] Heretical passages in *A Week on the Concord and Merrimack Rivers* (1849) are sometimes used to dismiss the possibility that he was a theist, but I contend that *Walden* reflects a return to theism even amidst the book's valorization of "Nature." Notwithstanding his Transcendentalism, that scholars have *not* analyzed his writings in terms of liberal Protestant natural theology is somewhat curious because they have long claimed that Unitarianism did shape his thinking in certain key ways. They have argued that his Unitarian upbringing charted a course for his religious iconoclasm,[8] and they have observed overlaps between Unitarian ethical theology and his anti-slavery writings.[9] Yet the following is the first study of Thoreau's close ties with liberal Protestant cultures of science, a study primed by work

---

[7]. Thoreau, *Journal*, 5.469. Hereafter cited parenthetically as *PJ*, volume, page number.
[8]. See, for instance, Lawrence Buell, *Literary Transcendentalism: Style and Vision in the American Renaissance* (Ithaca, NY: Cornell University Press, 1973), 120–23; Robert A. Gross, "Faith in the Boardinghouse: New Views of Thoreau Family Religion," *The Thoreau Society Bulletin*, no. 250 (2005): 1–5; David Robinson, *Natural Life: Thoreau's Worldly Transcendentalism* (Ithaca, NY: Cornell University Press, 2004), 12–15; Lydia Willsky, "Prophet among Rebels: Henry David Thoreau and the Creation of a Transcendentalist Bible," *The New England Quarterly* 86, no. 4 (2013): 625–54.
[9]. See, for instance, James Duban, "Conscience and Consciousness: The Liberal Christian Context of Thoreau's Political Ethics," *The New England Quarterly* 60 (1987): 208; Daniel S. Malachuk, *Two Cities: The Political Thought of American Transcendentalism* (Lawrence, KS: University Press of Kansas, 2016), 189–255.

on Thoreau and Unitarianism and more recent scholarship on Thoreau and nineteenth-century science that tends to shortchange theological contexts.

Reading Thoreau's 1850s nature writings in terms of liberal Protestant natural theology affords at least two distinct advantages. First, this approach illuminates a midcentury moment of rich intellectual exchange among scientists, theologians, and literary writers and reveals the capacious natural theology discourse that united them. The "widely-increasing horizon" in Humboldt's *Cosmos*, the "assemblage of all things which with which space is filled, from the remotest nebulae to the climatic distribution of those delicate tissues of vegetable matter,"[10] carried liberal Protestant natural theology into new spatial and temporal scales and revealed the creation as a vast web of interconnected parts that combined into wholes. Scholars have long noted Thoreau's association with liberal Protestant scientists and theologians, but they have mostly denied any theological influence and instead prioritized his writings' pantheistic or even a-theistic registers. In doing so, they have truncated a historical moment when religion and science mutually benefited from their close relationship, in contrast to the common perception that natural theology generally impeded scientific developments.

Second, reading Thoreau's work as liberal Protestant natural theology helps elucidate the imperialistic valences of his nature writings that were not unique to him but part and parcel of nineteenth-century science. In particular, the period's sense of wonder in nature either served as a rhetoric to assert control over nature and Indigenous peoples *or* reflected amazement at the observer's new *lack* of control over the cosmos. Thoreau inhabits both sensibilities. On the one hand, he observes in "The Allegash and East Branch" (1857) that his Penobscot guide Joe Polis exhibits a "dumb wonder" after having related to his white companions the creation story of

[10]. Humboldt, *Cosmos*, 1997, 1:68.

Mount Kineo.[11] Thoreau's wording suggests that only scientifically-informed observers know the truth about the mountain's formation, and thus they alone can experience a truly perceptive kind of wonder. Similarly, Thoreau's desire to draw near to God by settling at Walden Pond recalls Concord's religious, settler-colonial background and mostly neglects the very real presence and claims of Massachusetts Natives.[12] On the other hand, Thoreau often advocates a "wonder & awe" that he contrasts with a science that he says is "full of presumption." As he puts it, "Science affirms too much. Science assumes to show *why* the lightning strikes a tree—but it does not show us the moral *why*, any better than our instincts did" (*PJ*, 5.159). Examining a large white ash tree after it was struck by lightning, Thoreau portrays a theological wonder in which he has no claim on the "right" or more scientific explanation of the lightning strike.[13] To use his terminology, a true science is undertaken as an act of love, rather than for power and control. Unitarians often claimed love as their central virtue, and Thoreau adapted this emphasis to his natural science in ways that diverged from a utilitarian scientific mode of knowing.

---

[11]. Henry David Thoreau, *The Maine Woods*, The Writings of Henry D. Thoreau (Princeton, NJ: Princeton University Press, 1972), 172; cf. Joshua David Bellin, "Red Walden: Thoreau and Native America," in *Thoreau at Two-Hundred: Essays and Reassessments*, ed. Kevin P. Van Anglen and Kristen Case (New York: Cambridge University Press, 2016), 75–87.

[12]. In her recent Thoreau biography, Walls provides a synopsis of Concord's settler-colonial history that resulted in the removal of the Musketaquid (Algonquian for "grassy plain") people to nearby Nashoba. Laura Dassow Walls, *Henry David Thoreau: A Life* (Chicago: The University of Chicago Press, 2017), 4–6, 12–17. For Concord's repeated attempts to cast its history with Natives as entirely amicable, see Jean M. O'Brien, *Firsting and Lasting: Writing Indians out of Existence in New England* (Minneapolis: University of Minnesota Press, 2010), 71, 92. On Thoreau's erasure of Natives in *Walden*, see Bellin, "Red Walden: Thoreau and Native America," 76–77.

[13]. Bruce Ronda similarly speaks of Thoreau's "fascination with the power of nature beyond or beside the human, the sheer thing-ness of the material world that does not rely on the human for its existence or its justification." Bruce A. Ronda, *The Fate of Transcendentalism: Secularity, Materiality, and Human Flourishing* (Athens: The University of Georgia Press, 2017), 35.

I begin this chapter by tracing Thoreau's Unitarian upbringing and Harvard education during a pivotal moment in liberal Protestant natural theology. Baptized, catechized, and eulogized at First Parish Church in Concord, Thoreau retained many of the religious principles that Boston-area Unitarians emphasized, such as the Deity's unity and Jesus' full humanity, the distinction between the Creator and the creation, and the virtuous example and teachings of Jesus. At Harvard, Thoreau learned moral philosophy and natural theology from Joseph Lovering, Henry Ware, Jr., and Thaddeus William Harris, among other Harvard professors. Harris taught Thoreau from a textbook that included a Humboldtian-inflected, empirically-based natural theology that contrasted with the evangelical ethos of the better-known Paley's *Natural Theology*; he also gave Thoreau his first taste of taxonomic field work. I then examine Harvard natural science in the 1840s through 1860 and its influence on Thoreau, when Louis Agassiz and Asa Gray were modifying natural theology in distinct ways to forward an ecological natural world. Humboldt influenced all three naturalists but each interpreted his idea of a Cosmos slightly differently. Their similarities and differences clarify how Thoreau's natural history mode remained theistic and Transcendental despite scientific advances.

I next analyze the specific ways that Thoreau's writings integrate and revise liberal Protestant theological content, starting with his 1850s Journal in which he declares he will seek to "find God in nature" (*PJ*, 4.55; 7 Sept. 1851). The Journal presents a Humboldtian vision of nature as deeply interconnected and relational, a perspective he links with his professed vocation to find God in nature through his biblically resonant use of *world* and his distinctions between the Creator and the creation. *Walden* then envisions the natural world as knit together by love, a key theological and ethical value for Unitarians, perhaps more so than for their Trinitarian counterparts. *Walden* also integrates the Gospels, in particular the Sermon on the Mount,

paralleling the Unitarian stress on Jesus' ethical example and teachings as the core of Christianity. The book's final chapters employ the analogy of resurrection to describe nature's cycles and patterns, reprising the ambivalence among Unitarians concerning whether Jesus' Resurrection was literal or figurative, bodily or spiritual. I conclude with a brief analysis of Thoreau's most scientific essay, "An Address on the Succession of Forest Trees" (1860), which advanced a natural theology keyed to ecological processes. The address brought Thoreau full circle as he delivered his speech to an audience that included Unitarians and Harvard's president. His natural history writings from the 1850s to his death in 1862 emphasized that empirical precision and attunement to natural relationships were means to discover God.

God, Science, and Nature: Thoreau and Unitarian Natural History Cultures

Thoreau's friendship with Emerson and reading of *Nature* (1836) often overshadow his Harvard education and continuing affiliation with theistic natural scientists. To be sure, Thoreau incorporated Emerson's pantheism in his writings, especially in his first book, *A Week on the Concord and Merrimack Rivers* (1849). Emerson's pantheism rejected "a god with human qualities" in order to "deify a nature that is impersonal yet still sentient at some level," a "form of god [that] is, is in, and controls or regulates everything."[14] Yet even in *A Week*, one can see Thoreau retaining aspects of Unitarian theism. Like Unitarians, he rejects the Trinity and aspects of the Bible that do not seem to align with the message of the Gospels: " . . . Father, Son, and Holy Ghost, and the like. These are like the everlasting hills to them. But in all my wanderings, I never came across the least vestige of authority for these things." The "Sunday" chapter fiercely criticizes a Christianity that would "dethrone Jehovah, and crown Christ in his stead"; Thoreau

[14]. Richard Hardack, *"Not Altogether Human": Pantheism and the Dark Nature of the American Renaissance* (Amherst: University of Massachusetts Press, 2012), 3.

thinks it is a "Christian fable" that is still preached with a "snappish tenacity."[15] *A Week* garnered criticism for its more heretical reflections that equated Christ and Buddha, the New Testament and Eastern religious texts,[16] but when Thoreau turned to revise the *Walden* manuscript in the 1850s, he relied on his Unitarian background and affiliation with Harvard scientists to create a natural history mode that was more distinctly theistic compared to *A Week* or Emerson's writings.

Thoreau was baptized and catechized a Unitarian at First Parish Church, but he grew up in a period when Massachusetts' disestablishment of church and state was opening new possibilities for religious affiliation. As Robert Gross explains, his mother, Cynthia, briefly left Ezra Ripley's Unitarian First Parish in 1827 for the new Trinitarian group but returned because she could not accept the orthodox Trinitarian creed that said that Jesus was fully divine.[17] Unitarians focused less on Christ's sacrificial atonement than on his moral example and teachings as found in the Gospels. In some sense, Thoreau extended his mother's example of resistance to orthodoxy when he embraced Emerson's pantheistic, reformist spirituality after his time at Harvard. In 1841, he officially "signed off" from First Parish because he "[did] not wish to be considered as a member of any incorporated society which [he had] not joined" and because the church refused to allow radical abolitionists to lecture in the meetinghouse.[18] In his

---

[15]. Henry David Thoreau, *A Week on the Concord and Merrimack Rivers*, The Writings of Henry D. Thoreau (Princeton, NJ: Princeton University Press, 1980), 70, 67.
[16]. A good overview of these critical reviews can be found in Steven Fink, *Prophet in the Marketplace: Thoreau's Development as a Professional Writer* (Princeton, NJ: Princeton University Press, 1992), 241–53.
[17]. Gross, "Faith in the Boardinghouse," 2–3.
[18]. Henry David Thoreau, *Reform Papers*, ed. Wendell Glick, The Writings of Henry D. Thoreau (Princeton, NJ: Princeton University Press, 1973), 79. Cf. Barbara Packer, "Signing Off: Religious Indifference in America," in *There before Us: Religion, Literature, and Culture from Emerson to Wendell Berry*, ed. Roger Lundin (Grand Rapids, MI: William B. Eerdmans, 2007), 1–22.

adulthood, Thoreau was no regular church-goer, but he continued to encounter Unitarianism through his natural history training at Harvard, the liberal Protestant atmosphere of Concord, and his friendships and associations with religious scientists in the 1840s through the 1860s.

Thoreau attended Harvard from 1833-1837 during a time when Harvard was gradually transitioning from a classical education model to offering more specialized training in science. Prior to Agassiz's arrival at Harvard College in 1847, Harvard had hired very few professors solely to teach and practice natural science, and none whose work was as specialized as Agassiz's.[19] With the help of leading Boston citizens, Harvard had established a Massachusetts Professorship of Natural History in 1805, but the position was only held once, by William Dandridge Peck. After Peck, Thomas Nuttall, the curator of the botanical garden, gave the lectures in botany and zoology, and following Nuttall's resignation in 1833, the college's librarian, Thaddeus William Harris, taught the courses until the college hired Asa Gray in 1842, using new funds for the appointment.[20] In these transitional decades, the culture of Harvard natural science was one of pre-disciplinary fluidity and unity of the sciences, a unity its practitioners understood in terms of natural theology and moral philosophy.

Branka Arsić has identified "Cambridge, Massachusetts, circa 1837" as a watershed place and time, when various naturalists in the Boston area were floating new theories of material vitalism, geological antiquity, and species interrelationships.[21] Arsić's milieu is convincing and illuminating but does not tell the entire story. Emphasizing how certain naturalists were rejecting matter-spirit dualism in favor of more vitalistic theories, Arsić downplays the Unitarian moral

---

[19]. Christoph Irmscher, *Louis Agassiz: Creator of American Science* (Boston: Houghton Mifflin Harcourt, 2013), 94–95.
[20]. Dupree, *Asa Gray, 1810-1888*, 104–14.
[21]. Arsić, *Bird Relics*, 117–42. x

philosophy and theology that underpinned Cambridge in this period. When Thoreau studied natural history and went on to develop this particular aspect of his education further in the 1840s and 1850s, he assumed certain tenets of design, theism, and biblical moralism that his Harvard teachers associated with natural science. He would sometimes mock and question the value of his Harvard education,[22] but he also found certain elements essential in his scientific investigations of nature. He came to reject dualism, for instance, because he desired a more Unitarian and immanently religious approach to the natural world.

Along with the core Greek and Latin courses, Thoreau took courses in mathematics with Lovering, who would review *Cosmos* for the Boston Unitarian journal the *Christian Examiner*. Lovering welcomed *Cosmos* as an empirical science text that enriched humankind's knowledge of God's creation, perceived as a richly interconnected reality on a planetary scale. Like many liberal Protestants, Lovering keyed his natural theology more to natural phenomena than to specific doctrines of Christianity. He wrote that science consisted of "fragmentary sketches of the plan by which God acts" and "enlarges . . . the compass of this plan so as to include the strange facts. The plan of nature has not been infringed, but Science has caught another glimpse of the extent, the beauty, and significance of this plan."[23] For him, simplistic analogies of design fail to do justice to nature's interconnected phenomena, and Scripture did not give specific details concerning the divine plan of nature. Instead, "Science" (Lovering's capitalization) such as that in *Cosmos* opens new vistas and explanations. Yet Lovering's reconfigured natural theology was not areligious: he made use of liberal Protestant principles and teachings, such as the primacy of Christianity's more "mild doctrines," and encouraged theistic expressions of

---

[22]. See Walter Harding, *The Days of Henry Thoreau* (New York, NY: Alfred A. Knopf, 1966), 51.
[23]. Lovering, "Baron Humboldt's Cosmos," 55.

wonder toward nineteenth-century natural science's discovery of new relationships among species, life zones, and geological histories.[24]

In his final year at Harvard, Thoreau studied natural history with Harris, who became a major influence on Thoreau's natural history training. Harris helped form Harvard's Natural History Society, and he took Thoreau and his friends out in the Cambridge area in pursuit of plants, birds, and insects.[25] Harris would also write on science and religion for the *Christian Examiner*, merging language from Humboldt and Agassiz to argue for viewing the universe as "*one thought of God*, an organic whole."[26] However, Harris equally insisted on the importance of empiricism and precise description, core principles of Thoreau's natural history writing. One commentator on this period of American science has sought to distinguish between the empirical tradition of older naturalists such as Harris, who took for granted that nature's "design" reflected a Designer, and the more intrinsic unity of Humboldt's "Cosmos": "British empiricism (including Scottish Realism) had a strong commitment to an orderly world, [and] it . . . viewed the world as a collection of objects. 'Design' was confined to similarities between separate objects . . . . The idealistic notion of Kosmos as 'universal subject,' however, implied a much more intrinsic unity."[27] But in fact, Humboldt in *Cosmos* sought to merge these two schemes of unity, one seemingly more empirical and the other more intuitive. He claimed to follow the path of Baconian empiricism rather than that of "perilous abstractions," but he was also receptive to poetic descriptions of nature implied in his luminous term *cosmos*.[28] Following Humboldt's lead, Harris exemplifies how US naturalists did not necessarily perceive conflict between the older,

---

[24]. Lovering, 85.
[25]. Walls, *Henry David Thoreau*, 68.
[26]. Thaddeus William Harris, "Man and Nature," *Christian Examiner* 53 (July 1852): 116.
[27]. Hovenkamp, *Science and Religion in America, 1800-1860*, 109.
[28]. Humboldt, *Cosmos*, 1997.

more amateur tradition of natural history and the emerging Humboldtian science and its revisions of natural theology.

Harris taught his students natural history through recitation of William Smellie's *The Philosophy of Natural History* (1834), edited by John Ware, brother of Henry Ware, Jr., Harvard's Hollis Professor of Divinity and Thoreau's teacher of moral philosophy.[29] While John Ware is included in Arsić's milieu for his work updating the textbook to harmonize with new vitalistic theories of anatomy, Ware also kept the concluding "argument from design" of Smellie's textbook, perhaps because he recognized a difference from William Paley's more popularly known *Natural Theology*: Smellie's version of design was both more Unitarian and Humboldtian. Robert Sattelmeyer claimed that Thoreau encountered the standard "argument from design" in Smellie,[30] but this textbook differs from Paley, whose evangelical tone tended to overrun the scientific interventions he was making. Design, a flexible theory of nature that scientists were adapting to harmonize with new science, effectively tied together the taxonomic categories of Smellie's textbook: "An assemblage of all the orders of relative perfection constitutes the absolute perfection of the whole. . . . The whole universe is linked together by a gradual and almost imperceptible chain of existences both animated and inanimate. Were there no other argument in favor of the UNITY OF DEITY, this uniformity of design, this gradual concatenation of beings . . . seems to be perfectly irrefragable."[31] Here there are subtle rhetorical choices tending in more Unitarian and Humboldtian directions compared to Paley's work.

---

[29]. Kenneth Walter Cameron, *Thoreau's Harvard Years: Materials Introductory to New Explorations, Record of Fact and Background* (Hartford, CT: Transcendental Books, 1966), 13–18, 88.
[30]. Sattelmeyer, *Thoreau's Reading: A Study in Intellectual History*, 10.
[31]. William Smellie, *The Philosophy of Natural History; with an Introduction and Various Additions and Alterations, Intended to Adapt It to the Present State of Knowledge*, ed. John Ware, 5th ed. (Boston, MA: Hillard, Gray, and Co., 1834), 310.

Qualifying words like "assemblage" (a word Humboldt uses throughout *Cosmos*[32]) and "relative perfection" allow for nature's contingent phenomena to add up to a final perfection, a whole. Yet the chain of existences is *almost imperceptible* because the empirical natural scientist *discovers* the links rather than rationally assuming them. And, while Smellie himself was not a Unitarian, he perceives the universe's design as evidence of the Deity's *unity*, a theological emphasis that would have appealed to Ware and other Unitarians.

Harris's course gave Thoreau a solid foundation in empiricism and the liberal Protestant natural theology that could be revised to correspond with new science. Harvard natural science after Harris seems to take a more professional turn with Gray's arrival in 1842 and then Agassiz's in 1847. Yet both of these scientists retained religious rhetoric in their scientific work, extending the Unitarian culture of natural science at Harvard even when Gray moved to affirm Darwin's theory of evolution. Though critics have examined how Thoreau engaged with Agassiz's and Gray's scientific writings, what has not been adequately examined is the extent to which all three incorporated specifically Unitarian theological content and sources.

Critics often describe Agassiz as Thoreau's target when the latter discredited "spontaneous generation" and "special creations,"[33] but Agassiz cultivated a liberal Protestant ethos that influenced Thoreau in important ways. Raised a Swiss Calvinist, Agassiz embraced the religiously liberal atmosphere of Cambridge and sometimes attended Unitarian congregations with his second wife, Elizabeth.[34] He accepted historical scholarship of the Bible and characterized the Genesis narrative of Adam and Eve as a myth; he was in no sense a thorough-

---

[32]. See, for example, Humboldt, *Cosmos*, 1997, 1:68.
[33]. Walls, *Henry David Thoreau*, 458–60; cf. Neal C. Gillespie, *Charles Darwin and the Problem of Creation* (Chicago: University of Chicago Press, 1979), 26.
[34]. Lurie, *Louis Agassiz*, 262.

going Trinitarian or Calvinist, as Robert Richardson, Jr. suggests.[35] He managed to infuse his studies of geology (he was the first to propose the glacial theory of North America) and zoology with a natural theology tinged with Platonism, in which a divine Mind created everything through an immutable plan of design. For example, in his *Principles of Zoology* (1848) (which Thoreau acquired sometime in 1850 or 1851),[36] Agassiz begins by laying out principles for the proper study of natural history. His choice of terms was both Unitarian and Humboldtian: "It is only as [science] contemplates, at the same time, matter and mind, that Natural History arises to its true character and dignity, and leads to its worthiest end, by indicating to us, in Creation, the execution of a plan fully matured in the beginning, and invariably pursued."[37] A natural history that has character and dignity corresponded with the Unitarian emphasis on practical virtue over Trinitarian abstraction, and Humboldt had similarly balanced mind and matter in the *Cosmos* introduction, albeit without invoking a predetermined plan in creation. Agassiz insisted on a divine plan in nature not necessarily because he wished to defend a sense of Christian Providence but because it meant he could defend his view that species were immutable and that geological history was organized into discrete periods. And, as scholars have demonstrated, Agassiz's natural theology that merged liberal hermeneutics of the Bible with immutable natural history laws worked well to support his racist theory of polygenesis, the races as separate creations.[38] Despite his geographical science's racist valences, Agassiz was tremendously

---

[35]. "Agassiz's science clung to the Calvinist past, while Thoreau's combination of the new science and the older tradition of natural history led him toward the Darwinian future." Richardson, *Henry Thoreau,* 368.
[36]. Sattelmeyer, *Thoreau's Reading: A Study in Intellectual History*, 83.
[37]. Louis Agassiz and Augustus A. Gould, *Principles of Zoology* (Boston, MA: Gould, Kendall and Lincoln, 1848), 10.
[38]. William Ragan Stanton, *The Leopard's Spots: Scientific Attitudes toward Race in America, 1815-59.* (Chicago: University of Chicago Press, 1960), 100–112; Irmscher, *Louis Agassiz*, 233–42.

popular in Boston, and his three articles published in *The Christian Examiner* in 1850-1851 indicate that his natural theology held some appeal to Boston Unitarians.[39] Thoreau resisted polygenesis and any kind of immutable design, but Agassiz's theistic language did offer an analogue for his own method of finding God in nature.

Gray debated Agassiz over Darwin's *Origin* and later became known for his stance as an evolutionary theist. Scholars sometimes portray Gray as a more reticent Harvard professor who quietly did his empirical work on comparative botany while Agassiz wooed lecture audiences, but Gray, too, had strong opinions about natural theology, which he presented in lectures and brief published pieces, including a review of the *Explanations: A Sequel to "Vestiges of the Natural History of Creation"* (1846) that appeared in *The North American Review*.[40] Though a Presbyterian, Gray benefited from Harvard's liberal Protestant ethos. In his review of the *Vestiges* sequel, he promoted a religious science over what he perceived as the book's "express object of banishing the Deity from the present world." By contrast, Gray sought to maintain the "unity in diversity which the naturalist observes and admires," a balance struck when the naturalist perceives no conflict between "unity of plan" and "special intention."[41] Perhaps such teleological language seems irrelevant in terms of modern science's future, but the distinction between nature's general plan and more specific intentions in life forms was a natural theology that Gray used to support his comparative plant geography. He downplayed the theological nuances of his native Calvinist theology to focus on a single unified plan by one Creator, while

---

[39]. Louis Agassiz, "Geographical Distribution of Animals," *Christian Examiner* 48 (1850): 181–204; Louis Agassiz, "The Diversity of Origin of the Human Races," *Christian Examiner* 49 (July 1850): 110–45; Louis Agassiz, "Contemplations of God in the Kosmos," *Christian Examiner* 50 (January 1851): 1–17.
[40]. See Dupree, *Asa Gray, 1810-1888*, 216–32.
[41]. Asa Gray, "Rev. of *Explanations: A Sequel to the Vestiges of the Natural History of Creation*," *The North American Review* 62 (April 1846): 495, 500.

he also integrated the biblical language of God creating every living thing "after its kind."[42] Thoreau clearly valued Gray's scientific precision, using his Botany on his excursions in Concord, and his writings also indicate that he agreed with Gray that God was still involved in his creation beyond merely delegating everything to natural laws.

Thoreau kept up his associations with Harvard natural scientists in the 1840s and 1850s. His first natural history essay, "The Natural History of Massachusetts," appearing in the July 1842 *Dial*, was a review of Harris's handbook on insects among other natural history texts, and after he was given borrowing privileges at Harvard library, he sometimes consulted with Harris.[43] He sent specimens from Walden Pond to Agassiz in 1847, including rare fish and the unidentified wild mouse mentioned in *Walden*, and he later wrote to Agassiz for a friend to see if he could give lectures in Bangor, Maine.[44] While Thoreau did not correspond with Gray directly, he read Gray's Botany and cited it frequently in his Journal, and in 1860, the Unitarian minister Charles Brace showed him Gray's advance copy of Darwin's *Origin*. Thoreau loved it and went on to purchase a copy himself.[45]

Thoreau benefited from these friendships and associations with natural scientists, but at the same time, he resisted the professional, specialized science they were helping to usher in for fear that it neglected what he called the "higher law." He briefly joined the American Association for the Advancement of Science in 1853, and his letter declining membership for the next year reveals the position he found himself in as a nature writer who found Transcendental,

---

[42]. Gray, 483.
[43]. Wesley T. Mott, "Boston and Worcester," in *Henry David Thoreau in Context*, ed. James S. Finley, Literature in Context (New York: Cambridge University Press, 2017), 26.
[44]. Henry David Thoreau, *Correspondence*, ed. Walter Harding and Carl Bode (New York, NY: University Press, 1958), 180; 243–44; Thoreau, *Walden*, 224.
[45]. Walls, *Henry David Thoreau*, 459.

religious meaning in the natural world but also sought to study it using the latest empirical science. He returned the membership questionnaire and used the "Remarks" category to differentiate himself, at least implicitly, from the specialized science most AAAS members practiced: "I am an observer of nature generally, and the character of my observations, so far as they are scientific, may be inferred from the fact that I am especially attracted by such books of science as White's Selbourne and Humboldt's 'Aspects of Nature'." Thoreau refers to White's *Natural History of Selbourne* (1789), a text that captures the previous generation's spirit of empiricism and natural theology, and to Humboldt's *Aspects of Nature* (1849), a volume Humboldt intended for a general audience that focused on how aesthetics and science might complement each other in enriching the human spirit. Thoreau claims a thread between the older tradition of natural history and Humboldt's book that had been written for a more general audience. His Journal entry reflecting on his response to the AAAS offers clues as to what exactly that thread was: "The fact is I am a mystic—a transcendentalist—& a natural philosopher to boot. Now I think—of it—I should have told them at once that I was a transcendentalist—that would have been the shortest way of telling them that they would not understand my explanations." Thoreau senses that his more professionally scientific counterparts would fail to recognize the legitimacy of a "science which deals with the higher law."[46] "Higher law" has Transcendental overtones, but it also has a specifically liberal Protestant context, as James Duban has shown in regard to Thoreau's anti-slavery writings.[47] With this Journal entry, however, the question arises of his nature writings negotiate these three contexts—

[46]. Letter to Spencer Baird, 19 Dec. 1853, in Thoreau, *Correspondence*, 310; Thoreau, *Journal*, 5.469.
[47]. Duban, "Conscience and Consciousness."

Transcendentalism, natural science, and natural theology—the final roughly equivalent to his description of himself as a "natural philosopher."

The Liberal Protestant Natural Theology of *Walden*

Walden and its Journal precedents are a conglomeration of pantheistic and liberal Protestant natural theology rhetorics. Some passages evince Emersonian pantheism, seeking unity with the All or Nature rather than with a personal God, while others portray nature in terms more congruent with the conventionally Christian understanding of Creator and creation. In particular, *Walden* returns to and reconfigures three distinct aspects of Thoreau's Unitarian, liberal Protestant background: finding God's handiwork in nature; emphasizing the Gospels and the virtue of love in and for the creation; and rejoicing in the spiritual benefits and bodily, eschatological hope of Jesus' Resurrection.[48]

After publishing *A Week*, Thoreau seems to have experienced a minor existential crisis, possibly due to stinging criticism of the book's irreverent tone, and this crisis led him to rethink the purpose of his next literary work.[49] He felt drawn to a new project but lacked a central focus to organize the material better than he had done with his somewhat meandering first book. As he puts it in his Journal, "We are stimulated but to no obvious purpose. I feel myself uncommonly prepared for *some* literary work, but I can select no work. I am prepared not so much for contemplation as for force-ful expression. I am braced both physically and intellectually" (*PJ*, 4.50-51). This Journal entry on Sept. 7, 1851 progresses into a new resolve to study God in

---

[48]. I draw these Unitarian principles and teachings from several histories of nineteenth-century Unitarianism, including Howe, *The Unitarian Conscience*; Buell, *Literary Transcendentalism: Style and Vision in the American Renaissance*, 102–39; Duban, "Conscience and Consciousness"; Robinson, *Natural Life*, 12–15; Lydia Willsky-Ciollo, *American Unitarianism and the Protestant Dilemma: The Conundrum of Biblical Authority* (Lanham, MD: Lexington Books, 2015); Holifield, *Theology in America*, 197–217.

[49]. For *A Week*'s commercial failure, see Robinson, *Natural Life*, 126–29.

nature. He will seek God in nature and know "his lurking places" (*PJ*, 4.55), the pronoun evoking a personal God, not the Transcendental All. While Thoreau often used religious language metaphorically, this passage maintains a distinction between Creator and creation that suggests he is serious about making his search for the theistic God in nature a main focus going forward. He describes his "profession" in the following way:

> To watch for describe all the divine features which I detect in Nature.
>
> My profession is to be always on the alert to find God in nature—to know his lurking places. To attend all the oratorios—the operas in nature. (*PJ*, 4.55)

He will do so, he says, by "watching": "We are surrounded by a rich & fertile mystery—May we not probe it—pry into it—employ ourselves about it—a little?" (*PJ*, 4.54). He resolves to "watch & pray without ceasing" (*PJ*, 4.53), thus comparing his faithful study of nature to Paul's admonition regarding prayer in 1 Thessalonians 5:17.

In alluding to the Bible, Thoreau recognizes that his profession of patiently observing the seasons and natural phenomena of the year coincides with a broadly Christian tradition of seeking God in nature. The natural theology tradition derived authority from the Old Testament's repeated call to "behold the works of the Lord" (Ps. 46:8) and witness how the "heavens declare the glory of God, and the firmament sheweth his handiwork" (Ps. 19:1). But closer to home for Thoreau, Unitarians emphasized, more frequently than their Trinitarian counterparts, the importance of finding God in the creation. The minister William Ellery Channing, known as Boston's Unitarian apostle, wrote that nature "is pervaded by [God's] power; and, when quickened by the mysterious property of life, how wonderfully does it show forth the perfections of its Author!" Channing considered nature "itself a revelation of an omnipotent mind"; "God

delights to diffuse himself everywhere."[50] Although Thoreau would come to reject the dualism that runs through Channing's natural theology in which nature to have life must be "quickened" by spirit, Thoreau, too, portrayed the natural world as a revelation of the Creator. He participates in and extends this Unitarian emphasis on creation.

Thoreau, to be sure, was no regular reader of Channing. He was more influenced by natural theology of Harris, Lovering, Agassiz, and Gray that entailed an empirical method to study how the objects of nature made a world. Thoreau tells himself in one Journal entry to "remember thy creator in the days of thy youth. i.e. Lay up a store of natural influences—sing while you may before the evil days come—he that hath ears let him hear—see—hear—smell—taste—&c while these senses are fresh and pure" (*PJ*, 3.323; 21 July 1851). This "laying up a store of natural influences" to remember the Creator involved an empirical method that, to a certain degree, offset his Transcendental pantheism. As Thoreau scholars have emphasized, the springs and summers of 1851 and 1852 particularly clarified to him how a steady observation reveals patterns and rhythms of growth and behavior.[51] "You must be conversant with things for a long time to know much about them," he reflects in November 185l. "[L]ike the moss which has hung from the spruce—and as the partridge and the rabbit are acquainted with the thickets & at length have acquired the color of the place they frequent" (*PJ,* 4.193). April 1852 is a high point for this mode in the Journal in which natural objects and seasonal events suggest a

---

[50]. William Ellery Channing, "The Evidences of Revealed Religion," in *William Ellery Channing: Selected Writings*, ed. David Robinson (New York: Paulist Press, 1985), 154.
[51]. Thoreau scholars often identify the early 1850s as the start of a "turn to science." See, for instance, Sattelmeyer, *Thoreau's Reading: A Study in Intellectual History*, 78–92; Michael Benjamin Berger, *Thoreau's Late Career and The Dispersion of Seeds: The Saunterer's Synoptic Vision* (Rochester, NY: Camden House, 2000), 2–5; Bradley P. Dean, "Introduction," in *Wild Fruits: Thoreau's Rediscovered Last Manuscript*, by Henry David Thoreau, 1st ed. (New York: W. W. Norton, 2000), ix–xvii.

narrative worth writing about for more than just the spiritual, idealistic resonances they offer. In one April entry, he lists out flowers using names from Gray's botany manual and records their blooming dates as he observes them at Fairhaven Cliff and Heywood's Brook. He then writes, "This may perhaps be nearly the order of the world's creation—Thus we have in the spring of the year the spring of the world represented—Such were the first localities afforded for plants—Water-bottoms—bare rocks—& scantily clad lands—& land recently bared of water" (*PJ,* 5.4). Using Gray's taxonomic science, Thoreau finds a microcosm that proves just how rewarding close observation can be: *this* spring, rightly and faithfully studied, opens out to the world's spring, perhaps epitomizing the original creation itself. If this seeking after origins and Ur-plants calls to mind Goethe's *Urpflanze* or perhaps Emerson's essays, Thoreau's empirical precision also grounds such findings in a created world that human beings can observe and study but do not make themselves.

World becomes Thoreau's shorthand for how the creation is both scientifically knowable as an interrelated unity and wonderfully, mysteriously filled with God's presence.[52] The term carried distinct biblical resonances and allowed him to negotiate classical ideas and Christian natural theology: *world,* for instance, was the King James Version's translation of the ancient Greek term κόσμος, *kosmos,* used in the Septuagint (Greek Old Testament) and the New Testament.[53] In the Bible it referred to the earth, its inhabitants, or all of the universe, as for

---

[52]. Here I examine the roots of *world* to complement H. Daniel Peck's "worlding," "moments of recognition and unification, a coming into focus," and Walls's "relational knowing" and "epistemology of contact." These descriptions are accurate but can be further clarified by their theological background. H. Daniel Peck, *Thoreau's Morning Work: Memory and Perception in A Week on the Concord and Merrimack Rivers, The Journal, and Walden* (New Haven: Yale University Press, 1990), 85; Walls, *Seeing New Worlds*, 147.

[53]. Humboldt derived *kosmos* from the ancient Greek but overlooked the Septuagint's and the New Testament's use of the word. He thought the Romans corrupted the expansive Greek

example, "the earth is the Lord's, and the fullness thereof; the world, and they that dwell therein" (Ps. 24:1), "all ye inhabitants of the world" (Isa. 18:3), and Paul's use that describes how humans have turned away from the divine knowledge written into the creation from time's beginning: "For the invisible things of him from the creation of *the world* are clearly seen, being understood by the things that are made, even his eternal power and Godhead; so that they are without excuse" (Rom. 1:20).[54] *World* was also used in the KJV to translate *aeon,* age, to distinguish between the "world of this time" and the "world to come," as in Paul's phrasing, "be not conformed to this world" (Ro. 12:2).[55] Similarly, early English use of *world* conveyed the post-classical Latin *saeculum,* the temporal world and its duration.[56] When Thoreau uses world, he usually means the unity of earth and its natural forms; very rarely does he intend the more negative connotation. But his use at times does suggest temporality, not just spatiality, echoing the biblical *aeon* and the related notion that God brought forth and sustained the ages or *worlds*, as Hebrews 1:2 put it.

Thoreau's use of *world* aligns more with a liberal Protestant understanding than Emerson's use of the word. Harris, for example, wrote about the world humans experience from birth, connecting world to wonders: "We are born into the world. . . . .We are but one fact in a countless accumulation of facts on every side. Air, water, earth, flowers, starts, beasts, mountains—beautiful puzzles, delicious wonders—are around us." For Harris, the world's specific "dignity" arises when "we cease to regard it as an accidental combination of isolated

---

concept of *kosmos* by making it synonymous with *mundus,* the physical world and its inhabitants. Humboldt, *Cosmos,* 1997, 1:70–71.

[54]. For *kosmos* in the Septuagint and the New Testament see Joseph Henry Thayer, *Thayer's Greek-English Lexicon of the New Testament* (Peabody, MA: Hendrickson, 1996), 356–57.

[55]. Thayer, 18–21.

[56]. See the etymology of "World, n.," in *OED Online* (Oxford University Press, December 2020).

thoughts of God, and view it but as *one thought of God*, an organic whole."[57] Harris, like other liberal Protestants, distinguished between the self, the world, and God. Emerson, by contrast, sought to merge the world and God. At the end of *Nature* his pantheism progresses into a call for world-making over world-observing: "Build, therefore, your own world."[58] Emerson's *world* is, in a sense, self-constructed. Thoreau's *world* remains outside of himself, studied as facts that combine into wholes that could then be brought into *relation* with the self through a process of "worlding," as H. Daniel Peck has described it.[59] Thoreau's distinction between self and world derives from his Unitarian background, and liberal Protestant scientists reaffirmed it to him through their example of scientific rigor and an empirical method for studying God in nature.

An April 18th, 1852 Journal entry exemplifies Thoreau's understanding of *world* and demonstrates the sense of theological-ecological wonder the world provokes in him. He narrates an outing with the poet William Ellery Channing in which they experience a rainstorm and watch the waterfowl on the river. Interrelated events of the spring season flood his vision: birds migrating back to the area, the skunk cabbage blossoming, suckers floating into the meadow, cranberries washing from the meadow into the causeway road. Observing these things, Thoreau says that for the first time he perceives that the "year is a circle" with the "spring arc thus far," emphasizing the world's temporality (*PJ*, 4.468). He then reflects on the scientific task he has set out for himself. He aims to explore *relations* between himself and the objects that make a world:

> Why should just these sights & sounds accompany our life? Why should I hear the chattering of the blackbirds—why smell the skunk each year? I would fain explore the mysterious relation between myself & these things. I would at least

[57]. Harris, "Man and Nature," 115–16.
[58]. Emerson, *Ralph Waldo Emerson*, 36.
[59]. Peck, *Thoreau's Morning Work*, 85.

> know what these things unavoidably are –make a chart of our life—know how its shores trend—that butterflies reappear & when—know why just this circle of creatures completes the world. (*PJ*, 4.468)

An ecological-existential question—why these objects at all, and why in this particular way?—drives his particular description of the "circle of creatures." Thoreau seeks to find "God in nature" not simply by detecting spiritual analogies but by knowing particular species in their place and time and how they interact relationally over the natural year. He seeks to know God by knowing the natural phenomena that complete the spatial and temporal world.

The ecological-existential question first posed in the Journal prepares the way for the more public version in *Walden*, in which *world* conveys a place and time to observe scientifically and the mysterious harmony that God sustains. In the "Brute Neighbors" chapter, Thoreau asks, "Why do precisely these objects which we behold make a world? Why has man just these species of animals for his neighbors; as if nothing but a mouse could have filled this crevice?" (*Wa*, 225). Thoreau quickly connects his question to a specific mouse living beneath his cabin because this creature implies an answer: these precise objects, however mysteriously and wondrously, *do* make a spatial and temporal world, one that humans have not made themselves, though they participate in it. Sheer existence draws out a sense of wonder, and the details of how and wherefore the objects make a world provide Thoreau with literary purpose. The world demands both scientific rigor and the related willingness to be surprised at nature's wholeness, its "worldliness." The mouse reveals the power of scientific identification to aid in making fresh discoveries, for the one living under his cabin is a "wild native kind" as verified by "a distinguished naturalist" (*Wa*, 225), who was probably Agassiz, to whom Thoreau had sent

specimens from the pond in 1847.[60] Staying close to natural facts, Thoreau expresses a subtle wonder at the worldly neighbors he encounters and the natural history narratives that emerge in their habitats and interrelationships. Emerson "builds" the world with acts of intuitive consciousness; Agassiz explains the world's features as preconceived ideas of God, determined and not open to change; but Thoreau seeks to experience the natural world more directly than either thinker and witness its divinely creative, developing attributes so that he would know how the objects complete the world. This respect for objects outside himself accorded with the Creator-creation distinction of liberal Protestantism that encouraged scientists to study and admire the natural world.

While *world* retains clear theistic overtones, Thoreau uses *cosmos* and *universe* to emphasize the vast scale of nature and its propensity to change, characteristics he drew from his reading of Lyell, Humboldt, and Darwin, and other scientists who were proposing a cosmic, geological scheme of earth. Thoreau first read Lyell's *Principles of Geology* (1830-1833) in 1840, a book that argued that geological history made a literal six days reading of Genesis untenable, although many US geologists such as James Dwight Dana and Edward Hitchcock found metaphorical ways of reconciling the new time scale with the Genesis account.[61] Sometime in 1851 he read Darwin's *Voyage of the Beagle* (1845), which presented the Galápagos as a world in constant transformation and followed a Lyellian timeline exceeding the period of human life. Around the same time, he read Humboldt's *Aspects of Nature* (1849) and *Cosmos* volume one and two (1849), which conveyed interrelated phenomena across continents and proposed a theory of nature that blended idealism and empiricism to knit together the new

---

[60]. Walls, *Henry David Thoreau*, 229.
[61]. See chapter one of this dissertation for more on Dana and Hitchcock, who are sometimes dismissed as "creationists." Thoreau read Hitchcock's geological survey of Massachusetts.

findings of natural science.[62] In this way Thoreau's scientific reading gave him several specific points of reference and new terms when he set out to revise the *Walden* manuscript he had started during his stay at the pond in 1845 to 1847.

Yet in *Walden*, Thoreau does not necessarily perceive this dynamic Cosmos as conflicting with the more conventional terms of Creator-creation. Rather, as Lovering underscored in his *Cosmos* review, the Cosmos concept expanded the Creator-creation relationship to include the new vistas of natural science. Thoreau recommends a return to the simplicity and wondrous variability of the natural world, where one can find and praise God. Thoreau aspires, "to anticipate, not the sunrise and the dawn merely, but, if possible Nature itself!" (*Wa*, 17). But where Nature might sound like a Transcendental substitute for God, he elsewhere proclaims, "There is nowhere recorded a simple and irrepressible satisfaction with the gift of life, any memorable praise of God," and he seeks to provide a new expression of praise in the dynamic natural world he experiences at Walden (*Wa*, 78). He contends that experiments like his at Walden have their basis in the universe's vast scale and propensity to change:

> We might try our lives by a thousand simple tests; as for instance, that the same sun which ripens my beans illumines at once a system of earths like ours. If I had remembered this it would have prevented some mistakes. This was not the light in which I had hoed them. The stars are the apexes of wonderful triangles! What distant and different beings in the various mansions of the universe are contemplating the same one at the same moment! (*Wa*, 10)

Awed by the motions of the sun, the other stars, and the possibility of other "earths like ours," Thoreau relativizes his experiment at Walden as one single way to experience the natural world

---

[62]. Walls, *Henry David Thoreau*, 274–75, 308.

that miraculously transforms and continuously renews its life. Change in the cosmos, he says, is "a miracle to contemplate" (*Wa*, 11). In a later Journal entry he calls nature a "constant new creation."[63] In *Walden* he speaks of the "poem of creation" (*Wa*, 85).

In *Walden* he names the Creator using various appellations that comport with his experience, a tendency that hews close to Unitarian theology. The Unitarian minister Henry Ware, Jr. had chided Emerson for downplaying the personhood or what Ware called the "personality of God" in favor of a more impersonal divine force in nature.[64] Unitarians tended to speak of God as Father, Creator, or the "Author" of life, as Channing put it, all names that made God more like a fellow human being to which they could relate. Thoreau refers to God as Creator, Lord, Builder of the universe, Maker, Artist, potter, workman, paver, among other names in *Walden* (*Wa*, 207, 315, 329, 308, 306, 309, 134). In general, Thoreau seeks to describe the Creator as creative, a God who works materials into imaginative forms that the naturalist could discover and then represent. The very idea that God was personal or had personal qualities ran askance from Transcendental philosophy, which promoted an impersonal divinity. John Gatta agrees: "Thoreau was more often willing than Emerson was at a comparable phase to address God as a presence beyond himself, as a *someone* he could imagine to be both the object and the source of love."[65] By knowing the particular vegetation and the creatures near his cabin, Thoreau finds he is nearer to "that power which fashions their being" (*Wa*, 134). In the natural world, "*Next* to us is not the workman whom we have hired, with whom we love so well to talk,

---

[63]. Henry David Thoreau, *Faith in a Seed: The Dispersion of Seeds and Other Late Natural History Writings*, ed. Bradley P. Dean (Washington, D.C.: Island Press/Shearwater Books, 1993), 102.
[64]. Henry Ware Jr., "The Personality of the Deity," in *The Works of Henry Ware, Jr.*, vol. 3 (Boston, MA: James Munroe and Company, 1847), 26–39.
[65]. Emphasis added. Gatta, *Making Nature Sacred*, 128.

but the workman whose work we are" (*Wa*, 134; italics original). The power which fashions their being, the workman whose work we are—these were more than just metaphors. Thoreau suggests that God's personal, neighboring presence transformed his experiment into a religious enterprise.

For Thoreau, this personal God created the pond, but by seeking the Creator in the natural history details, he reflects on Walden's formation in a way that surpasses forms of natural theology that attributed everything to direct fiat. Midway into the book he gives a precise geographical description of the area:

> [Walden] is a clear and deep green well, half a mile long and a mile and three quarters in circumference, and contains about sixty-one and a half acres; a perennial spring in the midst of pine and oak woods, without any visible inlet or outlet except by the clouds and evaporation. The surrounding hills rise abruptly from the water to the height of forty to eighty feet, though on the south-east and east attain to about one hundred and one hundred and fifty feet respectively, within a quarter and a third of a mile. They are exclusively woodland. (*Wa*, 175-6)

Here Thoreau sketches the environmental facts in the Humboldtian mode of assemblages or vegetation groups.[66] These facts and their arrangement, he goes on to insist, were and are established partly by geological forces. He notes the rising and falling of Walden's waters, commenting that water now covers a sand bar on which he boiled a kettle of chowder in 1824 and that the size of certain shrubs and trees indicates "how many years have elapsed since the last rise to this height" (*Wa*, 181). These observations recall the famous frontispiece to Lyell's

[66]. See Jackson, "Introduction: Humboldt, Ecology, and the Cosmos."

Principles of Geology that illustrated the varying water levels at the temple of Serapis, an image that manifested nature's gradual transformations, resulting in neither pure progression nor decline but rather, "perpetual flux," as Lyell put it in volume one.[67] Thoreau, though, resists pure flux and implies that divine power works through the combination of forces and landscape features that have shaped Walden's natural life. His townsmen marvel at "how the shore became so regularly paved"; yet after close study, Thoreau perceives "the action of the waves on these hills," confirmed by the presence of the same kind of stones in the surrounding hills as those on the shore (*Wa,* 182). He takes pride in having discovering the geological history that the Creator may have used to shape Walden: "[U]nfortunately, it is no longer a mystery to me. I detect the paver" (*Wa*, 183). Gray would similarly argue in his reviews of Darwin's *Origin* that God can work through "secondary sources," and these sources did not necessarily mean that God was uninvolved in nature.[68] Thoreau delights in tracing the history behind the pond's current conditions because he believes he is examining God's handiwork.

However, Thoreau's study of Walden's formation also evokes his settler-colonial relationship to the land. Thoreau includes the Native legend—perpetuated by whites, not Natives themselves—of the pond's formation because, as Brian Donahue and Robert Thorson have pointed out, it so accurately describes how the kettlehole pond was formed by geological action. In Thoreau's account, the Native story tells how a great hill, as high as Walden is deep, sank into the earth while the Natives were holding a meeting, and the only person who survived was a woman named Walden. In all likelihood, the Paleoindians experienced the receding of the Wisconsin glaciation that had covered the area, and so they would have witnessed Walden

---

[67]. Charles Lyell, *Principles of Geology*, ed. M. J. S. Rudwick, 1st ed. [1830-1833], vol. 1 (Chicago: University of Chicago Press, 1990), 14.
[68]. Gray, *Darwiniana*, 131.

Pond's gradual formation when a trapped block of ice slowly melted away.[69] Thoreau normalizes a Native creation story to align with Western geology, a move that parallels his comment about Polis's "dumb wonder," a wonder that never reaches the intellectual level of science even though Polis might have captured something true about Mt. Kineo's formation. Thoreau rejoices in having, "as it were, my own sun and moon and stars, and a little world to myself" (*Wa*, 130). While *world* often signals the sheer gift of creation, "to myself" echoes the sense of possession his forebears felt toward a land they claimed to have acquired peaceably from Massachusetts Natives. As Joshua David Bellin puts it, "Thoreau's desire to portray himself as the original 'native of the soil,' it seems, led him to erase the evidence of living Indian peoples from his own backyard."[70] Thoreau would mature in his understanding of Indigenous peoples and cultures, keeping Indian Notebooks and annotating George Copway's *Traditional History and Characteristic Sketches of the Ojibway Nation* (1850) in ways that suggested he "was eager to hear from Native People themselves and to try, at least, to let their voices speak through the thick fog of prejudice that governed white attitudes."[71] But the fact remains that, besides an early mention of a Native person selling baskets in town (*Wa*, 19), Thoreau erases Indigenous history and living presence in the Walden area. This world to himself, then, looks a lot like the religious imperial project of early Massachusetts settlers, albeit with an abolitionist sensibility through which he seeks to critique a complacent New England religious culture.

At the same time, Thoreau's emphasis on love makes *Walden*'s scientific component decidedly less imperialistic and more focused on the sense of mystery that pervades all life,

---

[69]. Brian Donahue, *The Great Meadow: Farmers and the Land in Colonial Concord* (New Haven: Yale University Press, 2004), 29; Thorson, *Walden's Shore*, 134.
[70]. Bellin, "Red Walden: Thoreau and Native America," 77.
[71]. John J. Kucich, "Native America," in *Henry David Thoreau in Context*, ed. James S. Finley (New York: Cambridge University Press, 2017), 202.

beyond human power and control. He portrays love as a virtue that people should practice because it is an inherent quality of the creation. Nineteenth-century Unitarians believed they had found the key to reading Scripture rightly, to focus on the practical virtue of love for creation that they gleaned from Jesus' words in the New Testament. Lydia Willsky-Ciollo observes that for Unitarians, "the point of Jesus' earthly mission was to apprise humans of their duty to love God, through obedience to His laws and love of His creation, especially other human beings."[72] Channing thought that, regardless of conflicting opinions about Christ's divinity, all Christians could agree on the "unity and consistency of Christ's character as developed in the Gospels." He believed that Christ's character would draw people into greater loving communion with the creation and with their fellow human beings.[73] For many New Englanders, the special appeal of Unitarianism was a renewed interest in Jesus' teaching of love as set against the Congregational emphasis on a just God who could seem harsh and judgmental.

Extending the Unitarian ethic, Thoreau insists that natural objects exist for love's sake, even when studied from an empirical standpoint. For him, sheer existence radiates with love: "Do not the stars too show their light for love? Like the fireflies?" (*PJ*, 5.105). In *Walden* he watches the ducks rise in circles above the pond and then slant in sudden flights downward onto the water: "what beside safety they got by sailing in the middle of Walden I do not know, unless they love its water for the same reason that I do" (*Wa*, 237). For Thoreau, love is no projection onto nature but is integral to it. At one point he calls his Journal "the record of my love": "I would write in it only the things I love. My affection for any aspect of the world," world signaling the creation (*PJ*, 3.143). Studying relations and connections, he finds evidence of love,

---

[72]. Willsky-Ciollo, *American Unitarianism and the Protestant Dilemma*, 73.
[73]. Channing, "The Evidences of Revealed Religion," 142.

the web of what Gilbert White called the "natural affection" that unites creatures to their habitats.[74] For White, some creatures such as predators seemed to have a deficiency in natural affection, but for Thoreau even violence and decay complete the temporal and spatial world: "I love to see that Nature is so rife with life that myriads can be afforded to be sacrificed and suffered to prey on one another" (*Wa*, 318). He claims that an overarching love, what he calls here a "universal innocence," works in and beyond nature's competition and chaos (*Wa*, 318).

Thoreau's disposition of love resists the drive for absolute knowledge and power, but love nonetheless draws him to see the creation clearly with the help of science. He recommends knowing the world "by experience" so to test and see if it is "of the devil or of God" rather than taking the catechism's words at face value: "most men . . . have *somewhat hastily* concluded that it is the chief end of man here to 'glorify God and enjoy him forever'" (*Wa*, 91). Thoreau's pointed emphasis (*somewhat hastily*) leaves room for him and his neighbors to discover rather than assume they know God's creation already. For him, love seeks to know through contact rather than through scientific and theological abstractions.

From his premise that love is an intrinsic quality of creation, Thoreau moves to incorporate the Sermon on the Mount and the love that humans should practice, arguing for a different kind of economy grounded in nature. He rejects the newly regnant marketplace capitalism in favor of smaller economies such as one's household, suggestive of economy's etymological root, *oikos*.[75] The argument in the "Economy" chapter turns on an early reference to the Sermon on the Mount. Thoreau comments that the current economic model too often

---

[74]. Gilbert White, *The Natural History of Selbourne*, ed. Anne Secord, [1789] (New York, NY: Oxford University Press, 2013), 71.

[75]. On the capitalist market revolution in Thoreau's lifetime, see Charles Sellers, *The Market Revolution: Jacksonian America, 1815-1846* (New York: Oxford University Press, 1991).

ensures that, "By a seeming fate, commonly called necessity, they are employed, as it says in an old book, laying up treasures where moth and rust will corrupt, and thieves break through and steal" (*Wa*, 5). Invoking Jesus' words from the Sermon on the Mount in Matthew 6:19-21, he associates the sense of necessity in the current economic model with the man who stored up treasures on earth rather than in heaven, where moth and rust do not destroy. In Unitarian terms, one could say that Thoreau proposes free will, the freedom to choose virtuous living, as an alternative to the capitalist economic logic of fate, linked with Calvinist determinism. As Economy shows, such deterministic logic made farmers and merchants beholden to a global market system, and it sustained the racial enslavement from which the markets benefited.[76] In contrast, Thoreau seeks to ground his household economy in nature's ability to change, in the dynamic cosmos he perceives as knit together by love. While the market economy tended to eschew living relationships between people and nature "that the corporations may be enriched" (*Wa*, 27), Thoreau seeks to practice love for nature's differentiation and variability. By referencing the Sermon on the Mount just pages into his book, he connects this natural economy with the Unitarian emphasis on free will and the loving practical virtue of Christ.

Thoreau also critiques a state that upheld slavery and went to war with Mexico so as to enlarge slave territory. Speaking to New Englanders, he implicitly shows that his fellow liberal Protestants stray from their Arminian heritage by denying the possibility of social and political change. Daniel Walker Howe has argued that the "slavery problem brought to the fore the basic

---

[76]. For more on the class and race contexts of Thoreau's views of economy, see Lance Newman, *Our Common Dwelling: Henry Thoreau, Transcendentalism, and the Class Politics of Nature* (New York, NY: Palgrave Macmillan, 2005). See also Sandra Harbert Petrulionis, *To Set This World Right: The Antislavery Movement in Thoreau's Concord* (Ithaca, NY: Cornell University Press, 2006); Elise Virginia Lemire, *Black Walden: Slavery and Its Aftermath in Concord, Massachusetts* (Philadelphia: University of Pennsylvania Press, 2009).

contradiction between Unitarian ethical thought, which taught the limitless perfectibility of each person, and Harvard 'civil polity,' which praised a stable and hierarchical society."[77] Thoreau is acutely aware of the paradox of a perfectionist New England society that claimed to be grounded in true religion but often refused to promote the Bible's more radical ethics: "We have adopted Christianity merely as an improved method of *agri*-culture," he quips in "Economy" (*Wa,* 37). Walls observes that *Walden* was forged in the fire of the Fugitive Slave Act of 1850 that so incensed Thoreau and his fellow Transcendentalists, resulting in their impatience with gradualist reform and philanthropy.[78] As he wrote in "Resistance to Civil Government" (1849), underscoring his disgust with the nation's racial bondage and imperialistic war with Mexico, "When a sixth of the population of a nation which has undertaken to be the refuge of liberty are slaves, and a whole country is unjustly overrun and conquered by a foreign army, and subjected to military law, I think that it is not too soon for honest men to rebel and revolutionize."[79] *Walden* asserts the need for economic, social, and political change and demonstrates that liberal Protestants, in particular, have failed to follow through on their own teachings of free will and the human potential for moral reformation.

Thoreau portrays his experiment as a journey into a wilderness where he seeks a moral rebirth, and not solely in the individualistic sense in which modern readers sometimes understand it. He frequently had visitors at his cabin, including sometimes the Alcott children and once a party of thirty people to celebrate Concord's anti-slavery society's annual commemoration of West Indian emancipation.[80] Walden woods was always populated, hardly the wilderness

---

77. Howe, *The Unitarian Conscience*, 271.
78. Walls, *Henry David Thoreau*, 314.
79. Thoreau, *Reform Papers*, 67.
80. Harding, *The Days of Henry Thoreau*, 192–95.

sanctuary that modern readers imagine it to be, but rather a "rural slum of outcasts, drunks, and derelicts."[81] Thoreau's "simple and sincere account" (*Wa,* 3) of one life in nature thus opens onto a grand, diverse economy of former inhabitants, brute neighbors, and global networks of ice and philosophy that he then seeks to share in print. Economy, in this communal sense, refers broadly to Thoreau's love for the variety of nature's gifts and human characters. In contrast, the modern capitalist economy and its enslavement system did not encourage natural variety. Thoreau makes this point by rewriting Jesus' words: the birds of the air have their nests, the foxes their holes, but few Americans have a shelter in which to participate in the conviviality of nature's economy (*Wa,* 30). Calling his neighbors to simplicity, he evokes Jesus' "you have heard it said . . . but I tell you" logic in the Sermon on the Mount. His neighbors may have *heard* that all the latest commodities carried by the railroad are necessary for living, but he tells them that their "lives must be stripped, and beautiful housekeeping and beautiful living be laid for a foundation" (*Wa,* 30). This thought also echoes Jesus' conclusion to the Sermon that his hearers should build their house on the foundation of his words rather than sand (Mt. 7:24-27), although here for Thoreau such a foundation would not be Jesus' words specifically but the divine creation and the practice of loving it.

In the "Reading" chapter, he criticizes the Bible-only literacy of his neighbors to show them that their narrow perspective prevents them from following the Bible's teachings to the fullest extent. He notes that other nations besides the "Hebrews have had a scripture" but that "most men are satisfied if they read or hear read, or perchance have been convicted by the wisdom of one good book, the Bible, and for the rest of their lives vegetate and dissipate their faculties in what is called easy reading" (*Wa,* 106, 104). If his neighbors work to understand and

[81]. Walls, *Henry David Thoreau*, 199.

integrate the world's scriptures, they will discover true "liberality": "Let him humbly commune with Zoroaster, then, and through the liberalizing influence of all the worthies, with Jesus Christ himself," and let 'our church' go by the board" (*Wa,* 108).

The liberality he recommends, however, still depends on the authority of the Bible. For instance, the very next chapter, "Sounds," with its call to observe the "natural day," can be read as an extended commentary on Jesus' admonition in the Sermon on the Mount to "behold the fowls of the air" and "consider the lilies of the field" (Mt. 6:26, 28). "But while we are confined to books," Thoreau says, "we are in danger of forgetting that language which all things and events speak without metaphor, while alone is copious and standard" (*Wa,* 111). His assertion that "no method nor discipline can supersede the necessity of being forever on the alert" (*Wa,* 111) accords with his personal desire, as stated in his Journal, to be "always on the alert to find God in nature." Both of these statements recall Jesus' admonition to his disciples to "watch and pray" (Mk. 13:33). For Thoreau, then, the New Testament not only unsettles moral complacency; it frees up the individual to witness and love God's gifts in creation. Thoreau's practice of being on the alert had Eastern religious sources as well, but his love for creation and the professed desire to find God there derived first and foremost from a liberal Protestantism that expanded out to additional sources of inspiration.[82]

Thoreau's most sustained engagement with the New Testament occurs in the "Spring" chapter. Here he puts to work the descriptive methods he was learning from Humboldt and other natural scientists to achieve a vision of religious ecstasy at the season's change and to track spring's arrival into the "joy of [the] Lord" (*Wa,* 315). In many respects, the famous Deep Cut

---

[82]. Alan Hodder has made a similar point in "The Religious Horizon," in *Henry David Thoreau in Context,* ed. James S. Finley, Literature in Context (New York: Cambridge University Press, 2017), 78–88.

passage, in which he perceives natural forms emerging in the thawing of the sandbank constructed for the railroad tracks, may be his most Transcendental writing. With his probing for natural links between word sounds and roots, as well as his Goethean assertion that "the Maker of this earth but patented a leaf" (recalling Goethe's archetypal plant that metamorphizes into all natural forms and life stages) (*Wa*, 308), Thoreau demonstrates his indebtedness to German idealism, S. T. Coleridge's "Theory of Life," Ovid's *Metamorphoses*, and Emerson's essay on the American poet, among other sources.[83]

At the same time, though, this passage makes a scientifically attuned, literary intervention into Unitarian debates about the Resurrection by using this central Christian event to describe and rejoice in a natural world of ecological becoming. The preponderance of Bible references and allusions makes resurrection in this passage more than just an Emersonian metaphor. Spring reminds him of the particular hope of bodily, material resurrection. He recovers an interpretation of Christ's Resurrection that some American Unitarians regarded as heretical and that Channing had tried to fend off: the claim that the Resurrection was not merely of the spirit but of the body as well. For Channing, bodily resurrection evoked the specter of materialism and the work of English radical Unitarian Joseph Priestley (1733-1804), whom he adamantly opposed because of his views on a variety of doctrinal issues. Thoreau, in a Priestleyan mode, employs the resurrection analogy and reworks the concept to harmonize with an ecological, systems-oriented view of the natural world.

Priestley, who founded Philadelphia's Unitarian church, had caused a stir in the early republic with his ideas about resurrection and materiality. Although Boston Unitarians affirmed

---

[83]. The most comprehensive, detailed study of this passage is Gordon V. Boudreau, *The Roots of Walden and the Tree of Life* (Nashville: Vanderbilt University Press, 1990).

with Priestley the unity of God and similarly rejected the doctrines of Calvinism, most did not accept his claim that the soul's immateriality was a Greek metaphysical doctrine foisted onto the primitive Christian tradition.[84] For Priestley, the conventional doctrine of the soul's immateriality did not cohere with the natural world and its processes of decay and death. In his *Disquisitions Relating to Matter and Spirit* (1777), he argued for a bodily resurrection theory that he based not on the Apostles' Creed, which did affirm bodily resurrection ("I believe . . . in the resurrection of the body"), but rather on science:

> I myself believe the doctrine of the *resurrection of the dead* in another and more literal sense. Death, with its concomitant putrefaction, and dispersion of parts, is only a *decomposition*; and whatever is *decomposed*, may be *recomposed* by the being who composed it; and I doubt not but that, in the proper sense of the word, the *same body* that dies shall rise again, not with every thing that is *adventitious* and *extraneous* (as all that we receive by nutrition) but with the same *stamina*, or those particles that really belonged to the *germ* of the organical body. And there can be no proof that these particles are ever properly destroyed, or interchanged.[85]

Priestley insisted that material rather than spiritual resurrection was the more scientifically informed perspective because an immaterial soul could not be verified empirically. A few American deists, including Thomas Jefferson, were drawn to his views, but because Priestley repudiated all theories of atonement of sins, Channing found his ideas about resurrection objectionable and consistently opposed him throughout his career.[86]

---

[84]. Holifield, *Theology in America*, 199–200.
[85]. Joseph Priestley, *Disquisitions Relating to Matter and Spirit: And the Doctrine of Philosophical Necessity Illustrated* (New York, NY: Garland, 1976), 161.
[86]. J. D. Bowers, *Joseph Priestley and English Unitarianism in America* (University Park, PA: Pennsylvania State University Press, 2007), 34–35; Holifield, *Theology in America*, 199–200.

A few decades later, debate arose between Unitarians and Transcendentalists concerning whether Christ's Resurrection was literal or figurative, generally symbolic or a particular act of atonement for sin. Unitarians were committed to a miraculous, actual Resurrection of Jesus, but they tended to insinuate that humans would be raised in spirit rather than body. Transcendentalists such as Emerson and Theodore Parker contended that the Resurrection should be viewed less as a particular event than as a symbol of the everyday miraculous in nature.[87] As Emerson famously put it in the Divinity Address, "[T]he word Miracle, as pronounced by Christian churches, gives a false impression; it is Monster. It is not one with the blowing clover and the falling rain."[88] Emerson's turn away from the empty tomb in ancient Palestine to present-day New England's clover and rain may seem to provide the obvious pattern for his disciple at Walden. But Thoreau specifically links resurrection language to the material processes of nature rather than nature's "spirit." He registers the Priestleyan hope in material resurrection: not the full Unitarian, spiritualized faith in Jesus' particular Resurrection but the eschatological hope implied in the wider Christian tradition of bodily, material resurrection. Priestley believed that, while Jesus was not divine, he was the firstborn from the dead, and his return would mark the beginning of a universal, material resurrection.[89] Priestley's bodily resurrection and eschatological hope offered Thoreau a means to defy religious convention that still worked within the loose parameters of liberal Protestantism. Insofar as Thoreau scorned the dualism that robbed nature of intrinsic vital power, a point that Arsić has explored in detail,[90] bodily

---

87. Barbara Packer, *The Transcendentalists* (Athens: U of Georgia P, 2007), 76–89.
88. Emerson, *Ralph Waldo Emerson*, 57.
89. Holifield, *Theology in America*, 200.
90. Arsić, *Bird Relics*, 4 ff.

resurrection proved a suggestive analogy that exceeded both Channing's and Emerson's more spiritualized notions of death and the eschaton.

Thoreau does not immediately introduce resurrection in the "Spring" chapter. Instead, he begins in the persona of a Humboldtian naturalist, traveling in his native Concord with the instruments of science to study spring's return, and he prepares the way for his resurrection analogy by referring to the ice and pond as a "body" (*Wa*, 304). In early March, he places a thermometer into the middle of Walden and Flint's Pond, and the difference in temperatures points to the effect of Walden's deep waters and explains why Flint breaks up sooner. He observes that the sun passes through the ice and is reflected from the bottom in shallow water, making the melting uneven and causing air bubbles to form like honey-comb. One morning he strikes Flint's Pond with his ax to test the thawing ice's booming sound. Why does the booming occur mostly in the morning hours? As Thoreau explains, the morning rays create cracks, and once the air is less elastic the sound loses its resonance. Hence the pond "takes a short siesta at noon"—suggesting this body has habits, perhaps a personality— and then resumes briefly toward night (*Wa*, 301). The groaning and thundering seem to come from a living body: "[I]t has its law to which it thunders obedience when it should as surely as the buds expand with papillæ. The largest pond is as sensitive to atmospheric changes as the globule of mercury in its tube" (*Wa*, 302). Here Thoreau seeks the vital, ecological "chain of connection,"[91] the reward of empirical study for the Humboldtian naturalist who aspires to discover and create a new vision of nature: the pond as material proof of spring's miraculous return.

Thoreau's empirical study of the season and the pond lends a certain credibility to his ecstatic vision of nature's becoming in the railroad Deep Cut. Thoreau was a Transcendentalist,

---

[91]. Humboldt, *Cosmos*, 1997, 1:23.

but he was also a proponent of scientific empiricism and the potential of theistic natural theology. If he had started with this ecstatic vision rather than his empirical tabulations of the pond's thawing, he would have risked appearing to have thrown in his lot entirely with the more speculative German *Naturphilosophen*. But he starts with measurements, records, and specific observations, then progresses into his ecstatic vision of forms in the thawing sand: leaves, vines, lichens, leopard's paws, and birds' feet, "with excrements of all kinds" (*Wa*, 305). These forms follow a developmental progression, from lava to vegetation and animal forms and even human consciousness: "What is man but a mass of thawing clay?" (*Wa*, 307). Thoreau sees "into the life of things."[92] But rather than conflate God and the world, he is drawn to admire "the Artist" who is "still at work, sporting on this bank, and with excess of energy strewing his fresh designs about" (Wa, 306).

With "designs," Thoreau signals his intent to make natural theology cohere with a fluctuating, truly creative natural world. The sand foliage, as he calls it, makes him feel he is "nearer to the vitals of the globe" and that "this sandy overflow is something such a foliaceous mass as the vitals of the animal body" (*Wa*, 306). Whereas the "Higher Laws" chapter implies and then discards body-spirit dualism ("I love the wild not less than the good") (*Wa*, 210), the "Spring" chapter paratactically connects material, bodily analogies, from the pond's papillæ to humans as a mass of thawing clay, in order to rejoice at how "rapidly yet perfectly the sand organizes itself as it flows" (*Wa*, 307). That is, Thoreau marvels at how material processes organize themselves and continue the work of the Creator: the "Maker but patented as leaf" (*Wa*, 308). Summarizing his religious-scientific point, he revises the trope of nature as God's second

---

[92]. "Lines Composed a Few Miles Above Tintern Abbey . . . " (1798), line 49, in William Wordsworth, *Selected Poems and Prefaces*, ed. Stillinger Jack, Riverside (Boston, MA: Houghton Mifflin Company, 1965), 109.

Book to reflect a material, truly creative creation: "The earth is not a mere fragment of dead history, stratum upon stratum like the leaves of a book, to be studied by geologists and antiquaries merely, but living poetry like the leaves of a tree, which precede flower and fruit—not a fossil earth, but a living earth" (*Wa*, 309). God's Book as "poetry" allows him to balance theistic unity and a revitalized sense of wonder at the processes of fragmentation, decay, and new growth he experiences in the thawing sand.

Thoreau then folds spring and the sand foliage into a larger message about freedom and innocence, oriented toward the eschatological hope in resurrection. "Walden was dead and is alive again," he proclaims, using phrasing from Luke 15:24 and 32, the account of Jesus raising Lazarus from the dead. He also alludes to 1 Corinthians 15:55: "O Death, where was thy sting? O Grave, where was thy victory, then?" (*Wa*, 311, 317). For his message of freedom and innocence, he merges Humboldt's Cosmos concept with John Milton's primeval Chaos in memorable phrasing of a golden age: "As every season seems best to us in its turn, so the coming in of spring is like the creation of Cosmos out of Chaos and the realization of the Golden Age" (*Wa*, 313). Milton had rejected the historically orthodox teaching of creation *ex nihilo* for a creation doctrine that corresponded with his more classical belief in Chaos, or eternal, unformed matter. Many Unitarians took him as their heroic Protestant, carrying his polemics into an American context, though some like Channing downplayed the monism that Chaos implied.[93] In light of the Milton allusion, Thoreau's statement is more than just an Emersonian metaphor for spiritual renewal. He wants the Chaos-to-Cosmos assertion to work as a literal description of spring, while also using it to point ahead to the hope of a new eschatological, material reality,

[93]. Kevin P. Van Anglen, *The New England Milton: Literary Reception and Cultural Authority in the Early Republic* (University Park, PA: Pennsylvania State University Press, 1993), 41–79.

described in Isaiah and Revelation as a "new heavens and a new earth" (Is. 65:17, 66:22: Rev. 21:1).

The question arises whether this eschatological hope of bodily resurrection applied to people as well. Thoreau says that just as nature dies each winter and is resurrected in spring—the sun, he says, is literally "re-creating" the world—so "our human life but dies down to its root, and still puts forth its green blade to eternity" (*Wa*, 314, 311). He could mean this in Emersonian terms, that the human spirit, as a creative force, dies regularly and is renewed; or, in Priestleyan terms, he could be talking about physical death and the hope for a restored material reality. He follows with a bold proclamation that on this pleasant spring morning, "all men's sins are forgiven" (*Wa*, 314). This statement cuts across Christian theories of atonement, including those of Unitarians.[94] But it also draws on Milton's monism to suggest that people can enact a return to material nature and experience its resurrection hope now. His neighbors "doing penance in a thousand ways" can discover a certain degree of freedom in nature, even in its deaths (*Wa*, 4). *Walden*'s final example of an insect found in the dry leaf of an old apple wood table strengthens "faith in a resurrection and immortality" and conveys Thoreau's hope that human beings will experience not just spiritual awakening but physical renewal in the earth (*Wa*, 333). Beyond merely a call to follow one's dreams, then, the "Conclusion" reminds readers that the natural world is an "incessant flux of novelty" (*Wa*, 332). Thoreau means to encourage careful study of nature's workings so that people will discover God and the hope of material resurrection, even while he avoids associating that hope with faith in Christ's particular resurrection power.

---

[94]. While all Unitarians rejected the Calvinist terms of substitution, imputation, and satisfaction because such terms "called God's love into question," some Unitarians, including Channing, believed that Christ's death did have a "special influence in removing punishment." Holifield, *Theology in America*, 207.

Faith in a Seed: Thoreau Speaks to Liberal Protestants about Natural Theology

Thoreau first gave "An Address of the Succession of Forest Trees" at the Middlesex County Agricultural Fair in 1860. It became his most widely read essay in his day, expanding from the original audience of farmers, clergyman, and politicians—including Unitarians from Harvard—to a wider readership with the help of Horace Greeley.[95] Scholars have examined Thoreau's prescient understanding of forest succession mechanisms and the way his ideas anticipate and parallel Darwin's in *Origin*,[96] but the address also deserves attention for the renovated natural theology it advances. Thoreau's "faith in a seed" (*Address,* 181) and his language of mystery and wonder absorb the theistic, biblical terms of natural theology, even though he does not perceive the two as necessarily in conflict. He speaks to liberal Protestants about what is actually at stake in natural theology's transformation: not the existence or the continuing work of a Creator per se but rather the flawed extension of *ex nihilo* as a scientific principle. Thoreau seeks to embody a greater faith than the so-called theory of spontaneous generation, a faith that contingent networks and relationships complete the world.

As Walls explains, Concord farmers had been debating among themselves the problem of forest succession. Some oak lots when cleared were succeeded by pine, and others were succeeded by oak, and they noticed that the succession did not always correspond with the adjacent lot. The conventional way to understand this phenomenon was to speak of "spontaneous generation," species created *ex nihilo* in the soil, but this non-empirical answer did not satisfy Thoreau. When Concord farmers asked him to share his insight, he produced his most original

---

[95]. Thoreau, "An Address on the Succession of Forest Trees [1860]," 181. Hereafter cited parenthetically as *Address*.

[96]. See, for instance, Worster, *Nature's Economy,* 70–76; Walls, *Seeing New Worlds*, 199–211; Berger, *Thoreau's Late Career and The Dispersion of Seeds*.

contribution to natural science. Greeley published the address in his *New-York Weekly Tribune*, and from there it was widely reprinted. According to Walls, the address "not only answered [the farmers'] 'plain and practical' concerns"; it also "turned such matters of concern toward the 'higher culture' called for by President Felton [of Harvard College]."[97] Indeed, in the audience that day was president Felton and the former governor of Massachusetts, George S. Boutwell. Thoreau conveys to them the scientific, proto-ecological knowledge he had acquired through reading and dedicated observation and shares the Unitarian love of creation that had long guided his natural history writings.

The address follows a well-organized structure: problem, thesis, evidence, rebuttal of counterclaims and evidence, and conclusion. After explaining the scientific problem, he presents his thesis, and, similar to his discovery of the paver of Walden Pond, he states that the mechanisms of succession are "no mystery to me": "When, hereabouts, a single forest tree or a forest springs up naturally where none of its kind grew before, I do not hesitate to say, though in some quarters it may sound paradoxical, that it came from a seed" (*Address*, 166-7). That all trees spring from seeds, even the ones that grow where none of their kind have grown recently, may seem obvious to readers today, but Thoreau has to work to prove this thesis because farmers were not attuned to the particular mechanisms of seed dispersal. He details how the pine seeds' thin membrane is perfectly suited to be transported by wind and animals; observes how little oaks grow in old pine forests so that when the pine are cleared, oaks quickly succeed them; describes how jays and squirrels, storing up in fall and foraging in winter, work to disperse and plant pine-cones and oak acorns; and notes that while some seeds can retain their vitality over long periods of time, careful study reveals they have been "formerly cultivated," seeded by

---

[97]. Walls, *Henry David Thoreau*, 472.

animals and former human inhabitants (*Address*, 181). These insights serve as refutations of the spontaneous generation theory: every example of seemingly random growth, even where the species is not commonly found, the naturalist can trace back to the wondrous journeys of seeds.

However, rather than excise religious thought from this address of a "purely scientific subject" (*Address*, 166), Thoreau subtly imbues his report with a sense of "wonder & awe" (*PJ*, 5.159). He implies a personal God when he says that "there is a patent office at the seat of the government of the universe, whose managers are as much interested in the dispersion of seeds as any body at Washington can be" (*Address*, 167). At issue is not whether the Creator exists or continues to sustain nature. The problem was that his audience did not understand how natural mechanisms often reflect and complete the Creator's work. Thoreau notes that his garden seeds are "perfect alchemists" that "transmute substances without end" (183), echoing the biblical phrase "world without end," from the King James translation of Ephesians 3:21 and Isaiah 45:17, a phrase that also recurs throughout the *Book of Common Prayer*. He enlivens his report with adjectives and creative phrases suggesting amazement: the seed membrane is "beautiful"; the cherry seed is "artfully placed in order that a bird may be compelled to transport it"; the squirrel is "planting a hickory wood for all creation" (*Address*, 167, 168, 171).

Most poignantly, he concludes with a memorable aphorism that absorbs conventional natural theology in a new, scientifically astute "faith" in nature's processes:

> Though I do not believe that a plant will spring up where no seed has been, I have great faith in a seed—a, to me, equally mysterious origin for it. Convince me that you have a seed there, and I am prepared to expect wonders. (*Address*, 181-182)

While “faith in a seed” might seem to replace faith in God, the address never denies God’s existence. Thoreau proposes a revised natural theology that compresses several biblical passages concerning seeds and faith to highlight nature’s “wonders”: Jesus’ imperative for his disciples to have “faith as a grain of mustard seed” so that “nothing shall be impossible unto you” (Mt. 17:20); the image of the kingdom of heaven as a mustard seed, which “though least of all seeds, but when it is grown, it is the greatest among herbs, and becometh a tree: so that the birds of the air come and lodge in the branches thereof” (Mt. 13:32); and perhaps Jesus’ comparison of his own death to a seed dying in the soil to bring about new life: “Except a corn of wheat fall into the ground and die, it abideth alone: but if it die, it bringeth forth much fruit” (Jn. 12:24). Thoreau emphasizes that seeds are contingent and vulnerable, dependent on birds and other animals to be transported and dispersed, but that even so, some will eventually spring up to create wonders, equal to those wonders that naturalists previously attributed to spontaneous generation. That some seeds will die, though environmental conditions seem right for them to succeed, only reiterates for him the wondrous fact that some *do* survive and form the forests that his neighbors cultivate.

The address concludes with a Transcendental call to reform. Thoreau’s neighbors would rather watch the juggler than admire the wonders that farmers and gardeners have brought to the fair: “Surely, men love darkness rather than light,” he remarks, alluding to John 3:19 (*Address*, 183). Here Thoreau the naturalist dovetails with the transcendentalist prophet, calling for greater awareness of ecological vitality and interconnection, while the biblical allusion shows that his late writings continued to integrate his Unitarian background and Harvard cultures of science. A year after Darwin published his *Origin*, Thoreau’s natural theology gave his fellow liberal Protestants a path forward: rather than perceive religion and the new science as in conflict, they

should nuance the theistic, biblical terms to demonstrate that the natural world inspires a wonder that disrupts simplistic schemes of design.

In his Journal, in *Walden*, and in the "Address," Thoreau interwove his natural science with new creative possibilities for finding God in the natural world. As he read natural science and his writings contributed more to natural history, he reconfigured his Unitarian natural theology background and observed the Creator's handiwork in the seasons' change and the dispersions and successions of natural life in the Concord environs. His theistic rhetoric also connected natural phenomena to moral and political truths he assembled from the Bible, without sacrificing close attention to facts and natural processes. Even as he internalized Humboldt's Cosmos and the more nonreligious science then coming into being, his liberal Protestant nature writings continued to evoke God in an interconnected, ecological world.

Chapter 4

Possessive Providential Ecology: William Gilmore Simms's *The Cassique of Kiawah*

In the 1850s, reviewers heralded William Gilmore Simms as the single US writer who was carrying on James Fenimore Cooper's legacy of romanticizing America's westward push. Today, Simms is remembered as the voice of the white male plantation-owning South, but following Cooper's death in September 1851, Simms was widely considered the nation's premier novelist. "Since the demise of Cooper," asserted one critic, "there is no one who can be reckoned [Simms's] superior among American novelists." Another declared him "the Cooper of the South," and still another claimed had no equal "in the delineation of early American life, manners, and incidents."[1] The comparison to Cooper also underscores their shared settler colonial politics, now recognized as predicated on hierarchical supersessionism in which Native cultures give way to the march of white Anglo-American civilization, and for Simms, this politics entailed the South's economic bedrock of enslavement. Simms would write more than seventy books over his career, including those most commonly mentioned in American literary histories: *The Yemassee* (1835); the collection of stories *The Wigwam and the Cabin* (1845); literary criticism in *Views and Reviews in American Literature, History and Fiction* (1846); and his best-known novel, *The Sword and the Distaff* (1852), renamed *Woodcraft* in 1854, a historical romance Simms once described as "as good an answer to Mrs. Stowe as has been published."[2]

---

[1]. F.M. Hubbard, "The Cassique of Kiawah," *The North American Review*, October 1859, 559; J. Starr Holloway, "William Gilmore Simms," *Lady's Home Magazine*, December 1859, 283; "Rev. of *The Cassique of Kiawah, a Colonial Romance*," *Godey's Lady Book and Magazine*, August 1859.

[2]. 15 Dec. 1852 to James Henry Hammonds, in William Gilmore Simms, *Letters of William Gilmore Simms*, ed. Mary C. Simms Oliphant, Alfred Taylor Odell, and T. C. Duncan Eaves, vol. 3 (1850-1857) (Columbia: University of South Carolina Press, 1952), 222–23.

The last novel he published, however, has long been overlooked, despite a scholarly edition and a consensus among Simms scholars that *The Cassique of Kiawah* (1859) is his best work of fiction.[3] *Cassique* is concerned with the 1684 battle of Kiawah among Spanish, English, and the Kiawah Indigenous people for control of Charles-town, considered the Boston of the South in Simms's day. In Charleston, Simms published the *Southern Quarterly Review* and other leading Southern literary periodicals; it was also where, apropos this chapter's interest in the novel's natural historical dimension, the American Association for the Advancement of Science would host its annual meeting in 1850. Despite Simms's conservative politics, his last novel presents the historical narrative of Charleston ambivalently, insofar as *Cassique*'s portrait of his home city emphasizes its violent, imperialistic origins. The Englishmen conquer the Kiawah people,[4] and the plot's general movement suggests that nature's inherent violence and

---

[3]. William Gilmore Simms, *The Cassique of Kiawah: A Colonial Romance,* ed. Kevin Collins (Fayetteville: University of Arkansas Press, 2003). Hereafter cited parenthetically. For *Cassique* as Simms's best novel, see Anne M. Blythe, "William Gilmore Simms's *The Cassique of Kiawah* and the Principles of His Art," in *"Long Years of Neglect": The Work and Reputation of William Gilmore Simms,* ed. John Caldwell Guilds (Fayetteville: University of Arkansas Press, 1988), 40; John Caldwell Guilds, *Simms: A Literary Life* (Fayetteville: University of Arkansas Press, 1992), 232; Kevin Collins, "The Cassique of Kiawah: A Colonial Romance," in *Reading William Gilmore Simms: Essays of Introduction to the Author's Canon,* ed. Todd Hagstette (Columbia, SC: University of South Carolina Press, 2017), 50.

[4]. This essay acknowledges the land claims of Southeastern Indigenous tribes still living in South Carolina, including the Catawba, Pee Dee, Chicora, Edisto, Santee, Yamasee, and Chicora-Waccamaw peoples. The Kiawah people are considered "extinct," according to state and federal registers. One account of the South Carolina low country Indigenous peoples notes that the Kiawah are last mentioned in historical records in 1743. Gene Waddell, *Indians of the South Carolina Lowcountry, 1562-1751* (Columbia, SC: University of South Carolina Press, 1980), 6. During the Yamasee War (1715-28) waged by the Yamasee, Creeks, Catawbas, and several other Indigenous groups against the South Carolina English colony, some Kiawah individuals served the British as "Settlement Indians," and after the war, the Kiawah were requesting land from the colony up until at least 1743. There is the possibility that some Kiawah joined the Yamasee or Cherokee tribes and migrated north. See Larry E. Ivers, *This Torrent of Indians: War on the Southern Frontier, 1715-1728* (Columbia, SC: University of South Carolina Press, 2016), 22, 161.

competition justify the catastrophic human violence of imperialism. But Simms's narrator and protagonist have misgivings about this historical trajectory. The novel relays that the historical dialectic in which European colonists overcome Indigenous cultures tends to ignore nature's dynamism and interconnectedness. *Cassique,* that is, expresses concern that something *ecological* is trampled as Anglo-American history unfolds in Charleston.

Another way to put this tension is that Simms seeks to merge an imperialistic, allegedly providential scheme of history with a Humboldtian, *potentially* (yet not necessarily) amoral view of the universe. Throughout *Cassique,* Simms integrates Charleston's natural history traditions, which included Louis Agassiz's racist, providential zoology. In particular, *Cassique*'s key terms of *provinces* and *Providence* resonated with Agassiz's religiously liberal, idiosyncratically Humboldtian natural science and the controversy it had stirred among Charleston naturalists. As one of Simms's characters, Edward Berkeley, will put it describing the supersession of the Kiawah people, "Verily, the mysteries of Providence are passing wonderful!" (453), an exclamation intended to conflate nature's grandeur with the Anglo-American providential history that will constitute Charleston. At the same time, the novel's more Humboldtian, amoral registers will put a vivid question mark by this seemingly inevitable history.

The novel thus dramatizes what I call *possessive providential ecology*: a religiously-infused natural world that, while becoming more difficult to read as providentially designed or entirely benevolent, ultimately affirms and justifies the violent rise of Anglo-American society. *Cassique* addresses a crisis in Providence, the Christian commonplace that New World imperialism had complicated and that the new Humboldtian science further strained.
Black theologian Willie James Jennings explains that European colonists reduced Providence to a "providence of possession," starting with José de Acosta in the sixteenth century but also

drawing strength from early Christianity's sometimes insidious supersesessionist tendencies toward Judaism.[5] According to Jennings, Europeans subscribed to a distorted doctrine of creation that envisioned "new lands as a system of potentialities" in which "everything—from people and their bodies to plants and animals, from the ground and the sky—was subject to change."[6] In this scheme, nature existed for the good of Europeans as a stockpile of resources waiting to be converted and transformed. Jennings traces how this possessive providentialism continued into the nineteenth century with the biblical justification of slavery in which "the people of God" became the "*peoples* of God," each with their separate roles within a hierarchy supported by new scientific findings that suggested there were different species of humans.[7] Simms, in an unexpected way, parallels Jennings's critique of the providential tradition, underscoring how new Humboldtian developments in science were still imbricated in possessive providentialism. *Cassique* offers a multi-sided interpretation of the natural world in which Simms evaluates the benign providential tradition and reveals how the new Humboldtian cosmos lacked moral orientation. Yet he shores up the ambivalence, finally, to reassert Anglo-American superiority.

This chapter also sets Simms alongside his contemporary, Herman Melville, who was similarly invested in exploring how the new science might reshape interpretations of Christian imperialist history. Melville's "Encantadas, or Enchanted Isles" (1854), offered Simms an example of how to portray nature's geological history, ecological interconnections, and numinous vitalism in an ekphrastic form that imitated Humboldt's scientific visuals. These

---

5. Jennings, "Binding Landscapes: Secularism, Race, and the Spatial Modern," 208.
6. Willie James Jennings, *The Christian Imagination: Theology and the Origins of Race* (New Haven: Yale University Press, 2010), 43.
7. Jennings, 241, emphasis added. See also Cristin Ellis, *Antebellum Posthuman: Race and Materiality in the Mid-Nineteenth Century* (New York: Fordham University Press, 2018), for how new science and archaeological findings transformed how antebellum Americans conceived of the "human."

sketches highlighted New World imperialist history, a context mostly absent in Melville's scientific sources (which included Charles Darwin's *Voyage of the Beagle* [1845]). Melville and Simms both saw how Humboldtian science imbued nature with wondrous potentiality and moral contingency. Both writers alluded to the Bible and a divine presence in nature, and both distrusted the natural theology tenet that nature always manifested a benevolent "design." Their writings have a cynical edge to them lacking in Cooper's romances, attributable in part to the ecological flux and geological temporalities in Humboldt's writings. But in contrast to Melville's pessimism that at times borders on despair, Simms employs Humboldtian concepts to imagine a divine natural world that coheres when Anglo-American colonists settle on the land and create Charleston's enslaving society.

A simplistic secularization narrative purports that Humboldt's nonreligious vision in *Cosmos* was a precursor to Darwin's modern, anti-teleological natural world in *Origin of Species* (1859), published the same year as *Cassique*. Yet often absent from this narrative is the extent to which the newly envisioned contingency of the natural world could be used to justify Anglo-American settler colonialism, such that whites believed they had a religious obligation to *make* a civilization out of an arbitrary natural world. The providential tradition did not suddenly vanish with new ecological perspectives. Some US scientists and writers transformed providence into more insidious forms, which they supported with new science. Agassiz, for instance, perceived species and the races as divine ideas periodically destroyed and remade in geological epochs, a zoological science that he claimed was Humboldtian and that would come to have surprisingly wide purchase in antebellum America. Negotiating Agassiz's and Humboldt's views, and even briefly imagining ecological complexity apart from imperialism, *Cassique* ultimately controls

emergent ecology's anti-teleological potential in order to strengthen the ties between providential religion and New World imperialism.

Simms and Antebellum Charleston's Literary Culture

American literary studies has paid surprisingly scant attention to antebellum Charleston, which in the early nineteenth century rivaled Boston, Philadelphia, and New York as a vibrant center of cultural and intellectual life. Young poets convened in the back room of John Russell's bookstore, evaluating literary magazines and the prospect of launching a new one called *Russell's Magazine*. Clergymen, businessmen, and lawyers of the "Literary Club" met in each other's homes to discuss and debate civic, religious, and scientific topics. Naturalists collected specimens for the Charleston Museum, dispatching letters to European scientists, including to Humboldt, to report their findings.[8] In *The Cambridge History of American Literature*, Eric Sundquist briefly discusses Simms's "use of the historical novel in defense of the South" to justify the need for "permanent vertical rule within a democratic structure," but he does not mention how Charleston's literary culture informed Simms's work.[9] Even among Southern literary scholars, antebellum Charleston has been understudied.[10] For instance, Louis D. Rubin,

---

[8]. On antebellum Charleston, see Lester D. Stephens, *Science, Race, and Religion in the American South: John Bachman and the Charleston Circle of Naturalists, 1815-1895* (Chapel Hill: University of North Carolina Press, 2000); Lester D. Stephens, "The Literary and Philosophical Society of South Carolina: A Forum for Intellectual Progress in Antebellum Charleston," *The South Carolina Historical Magazine* 104, no. 3 (July 2003): 154–75; Kenneth Severens, *Charleston Antebellum Architecture and Civic Destiny* (Knoxville: University of Tennessee Press, 1988); Michael O'Brien and David Moltke-Hansen, eds., *Intellectual Life in Antebellum Charleston* (Knoxville: University of Tennessee Press, 1986).

[9]. Eric J. Sundquist, "The Literature of Slavery and African American Culture," in *The Cambridge History of American Literature: Volume 2: Prose Writing 1820-1865*, ed. Sacvan Bercovitch (New York: Cambridge University Press, 2003), 261–62.

[10]. Jennifer Rae Greeson has recently analyzed the depiction of "Charles-Town" in J. Hector St. John de Crèvecoeur's in *Letters from an American Farmer* (1782), but neither "Farmer James" nor Crèvecoeur himself lived in Charleston. Jennifer Rae Greeson, *Our South: Geographic*

Jr. emphasizes Simms's alienation from Charleston, which certainly factored into Simms's final novel, but he does not explore how the city's history and literary culture shaped his writing.[11] This erasure of Charleston has contributed to *Cassique*'s neglect.

Simms published and propagated new natural science in Charleston. In addition to editing the *Southern Quarterly Review* and other Charleston-based periodicals that often featured essays and reviews on science, he compiled the *Charleston Book* (1845) to showcase the city's literary culture, and in it he included an essay by John Bachman, Charleston's most famous naturalist due to his collaboration with John James Audubon on his *Quadrupeds of North America* (1850-1854).[12] A few years later, Bachman would debate Agassiz on the subject of geographical distribution and racial origins, and Simms sought to capitalize on their debate by soliciting Agassiz's reply to Bachman; he writes in one letter that the "subject [of racial unity] is one at this moment of considerable interest." A few months earlier, Simms had requested a review of *Cosmos*, a work he calls "suggest[ive]" of the "sufficiently provocative" new subjects of natural science.[13] In his early novels, Simms had romanticized nature as the historical and thematic backdrop, but in the 1850s, as he cultivated discussion in Charleston literary periodicals about

---

Fantasy and the Rise of National Literature (Cambridge, MA: Harvard University Press, 2010), 19–32.

[11]. Louis D. Rubin Jr., "Simms, Charleston, and the Profession of Letters," in *"Long Years of Neglect": The Work and Reputation of William Gilmore Simms*, ed. John Caldwell Guilds (Fayetteville: University of Arkansas Press, 1988), 217–34.

[12]. John Bachman, "The Morals of Entomology," in *The Charleston Book: A Miscellany in Prose and Verse*, ed. William Gilmore Simms (Charleston, SC: Samuel Hart, Sen., 1845), 30–39. Here I express my deep gratitude to Matthew Simmons, current president of the William Gilmore Simms Society, for directing me to sources on Simms, Charleston, and science in the Simms Initiatives database.

[13]. 1 July 1850 to John Young Bassett and 15 April 1850 to Lewis Reeve Gibbes, in Simms, *Letters of William Gilmore Simms*, 1952, 3 (1850-1857):45, 34.

innovative works of science, he began exploring in fiction new concepts of nature's geological antiquity and ecological interconnectedness.

Simms knew Charleston's natural history traditions and was particularly attuned to the Palmetto City's unique landscape features. James Kibler has shown how Simms drew from the natural history works of William Bartram, John Lawson, Mark Catesby, and others in his descriptions of the flora and fauna of the South Carolina low country, sometimes even correcting their species names with more local appellations.[14] Kibler does not discuss *Cassique*, but this later novel extends his use of natural history by representing and reflecting on ecological flux and environmental change between the seventeenth and nineteenth centuries. *Cassique* began as a novel titled "Oyster Point," a work Simms first started at age eighteen, and it later expanded into a capacious vision of the liminal, coastal landscape.[15]

Before *Cassique,* Simms had balanced celebratory affirmation and benign satire of Charleston. For instance, in an 1857 touristic sketch of Charleston for *Harper's New Monthly Magazine*, he details his city's balance of Old World and New, its refined culture and its openness to new commerce. Significantly, he never refers to the city's reliance on enslavement, though in discussing the city's plan for a new port through which to do business with other nations he indexes the cotton and rice grown on nearby plantations. As Simms's narrator observes in *Cassique* from the vantage of the nineteenth-century present, "the whole space is occupied with fertile plantations, in which cotton is eloquent on behalf of civilization" (158). The statement is made with some regret for what has been lost in the move toward large-scale plantation agriculture, but in the *Harper's* sketch he has high praise for what he perceived as

---

[14]. James E. Kibler, "Simms as Naturalist: Lowcountry Landscape in His Revolutionary Novels," *Mississippi Quarterly*, 1978, 499–518.
[15]. Guilds, *Simms,* 229.

Charleston's distinct culture, which he considers comparable to European cities. He notes that the streets are narrow to imitate Spanish towns, close enough that one might embrace a sweetheart across the street from opposing balconies. The steeple of St. Michael's Church, once the landmark of the city from the sea, houses bells that in the humid climate have acquired a "rare sweetness of tone." He observes that if you approach the city by sea, you will perceive similarities to Venice: built on flats and shoals of sand and mud, the Palmetto City extends out gracefully over the water.[16]

Elsewhere, Simms satirized his city's frivolities and high society, and in *Cassique* this satirical mode develops into challenging the providential view that the colony was destined to become the South's Boston. He began to develop a Thackeray-esque satire of the city in *Katharine Walton* (1851), but in the late 1850s, two events led to an even more cynical perspective toward Charleston and civilizational progress at large. After a disastrous lecture tour of the North in 1856 in which he sought to defend what he called the South's manners and customs, he grew increasingly disillusioned with his prospects for literary fame.[17] He was quick to blame Charleston for taking him for granted and not appreciating its literary artists.[18] Personal tragedy also struck: Simms lost two sons to yellow fever on the same day in 1858. When he lost a child in 1842, he wrote to a friend that the loss had not diminished his faith in Providence: "these successive strokes of Providence, I am sufficiently a Christian to believe, are intended for

---

16. William Gilmore Simms, "Charleston, The Palmetto City," *Harper's New Monthly Magazine* 15, no. 85 (June 1857): 14, 2.
17. See Guilds, *Simms*, 124–27; Miriam J. Shillingsburg, "Simms's Failed Lecture Tour of 1856: The Mind of the North," in *"Long Years of Neglect": The Work and Reputation of William Gilmore Simms*, ed. John Caldwell Guilds (Fayetteville: University of Arkansas Press, 1988), 183–201.
18. Rubin, "Simms, Charleston, and the Profession of Letters."

some great end—perhaps some benefit." Yet the 1858 tragedy seems to have cut deep and likely impinged on his growing pessimism toward his city and its civilizational progress.[19]

Previously, Simms's religious outlook had been effectively deistic, but professional frustration and personal tragedy forced him to confront what had been an essentially optimistic view of history. Although he had his children baptized in the Episcopal Church, he declared in 1856, "My own mind stubbornly opposed every creed of every Christian Church extant."[20] Adam Tate concludes that Simms's religion was "classical," modeled on Roman piety, but Drew Gilpin Faust seems closer to the mark when she claims that Simms and his circle exhibited a Romantic outlook of spiritual alienation, coupled with a drive for intellectual and social reform.[21] After the disastrous 1856 lecture tour and the tragedies of 1858, he grows less certain of providential action's moral telos and the capacity for his region to transcend its violent history. As Mary Ann Wimsatt puts it, Simms moves "steadily away from the happy and confident world of the early Revolutionary War Romances to the landscape of shattered dreams that is the dominant landscape of *The Cassique of Kiawah*."[22]

At least two additional contexts contributed to *Cassique*'s ambivalence about Charleston and its civilizational progress: Simms's reading of Melville, and the rise of a Humboldtian,

---

[19]. 30 April 1842 to James Henry Hammond in William Gilmore Simms, *Letters of William Gilmore Simms*, ed. Mary C. Simms Oliphant, Alfred Taylor Odell, and T. C. Duncan Eaves, vol. 1 (1830-1844) (Columbia: University of South Carolina Press, 1952), 304.

[20]. 4 May 1856 to Justus Starr Redfield, Simms, *Letters of William Gilmore Simms*, 1952, 3 (1850-1857):431; Guilds, *Simms*, 235.

[21]. Adam L. Tate, "Religion and the Good Society: Simms's Classical View," *The Simms Review* 2, no. 9 (Winter 2001): 8–15; Drew Gilpin Faust, *A Sacred Circle: The Dilemma of the Intellectual in the Old South, 1840-1860* (Baltimore: Johns Hopkins University Press, 1977), 46.

[22]. Mary Ann Wimsatt, *The Major Fiction of William Gilmore Simms: Cultural Traditions and Literary Form* (Baton Rouge: Louisiana State University Press, 1989), 192.

potentially amoral universe, which Agassiz and others contested with new iterations of Providence's workings in the natural world.

Melville's Humboldtian Writing

In the early 1850s, Simms reviewed Melville's novels, and he expressed admiration for his contemporary's representation of the natural world. He reviewed *Mardi* (1849), *Redburn* (1849), *White Jacket* (1850), *Moby-Dick* (1851), and *Pierre* (1852) in his *Southern Quarterly Review*. He had little sympathy for the "ravings" of the "Mad Captain" in *Moby-Dick* and wondered if the author of *Pierre* had himself gone mad, but he admired the scenes in the former novel "which relate directly to the whale, his appearance in the oceans which he inhabits; his habits, powers, and peculiarities, his pursuit and capture." "Mr. Melville," Simms writes, "has as much personal knowledge of the whale as any man living, and is better able, than any man living, to display this knowledge in print." *Moby-Dick* offered Simms an ecological vision that was in tension with nature's benevolent "design." As Simms points out in his review, the whale is "sufferer or performer": the victim and embodiment of a contingent, fluctuating, potentially amoral natural world.[23]

Melville's series of sketches titled "The Encantadas" were first published in 1854 in the pages of *Putnam's Monthly Magazine*, a magazine to which Simms contributed.[24] Melville based the sketches on his encounter with the Galápagos Islands as well as his reading of scientific accounts, including Darwin's *Voyage of the Beagle* (1845).[25] Though Simms never reviewed the *Piazza Tales* (1856) in which "The Encantadas" was eventually included, it is possible that he

---

[23]. William Gilmore Simms, "Rev. of *Moby-Dick*, by Herman Melville," *Southern Quarterly Review* 21 (January 1852): 262.
[24]. See Simms, *Letters of William Gilmore Simms*, 1952, 3 (1850-1857):200, 359.
[25] See Denise Tanyol, "The Alternative Taxonomies of Melville's 'The Encantadas,'" *The New England Quarterly* 80, no. 2 (2007): 242–79.

read the sketches in *Putnam's*. They would have offered him a model for how to imitate in writing Humboldt's visuals, integrate geological timescales, and evoke a sense of cosmic mystery in the strange species that dwell in luminal areas like the archipelagos. In contrast to more straightforward scientific accounts, "The Encantadas" represents the natural world through a gothic aesthetic and Catholic imagery, while it undermines religious certainty through characters that deal with tragic fates and imperialist violence. The connecting link in these various happenings are the islands themselves, which Melville depicts as Humboldtian ecological zones that belie the natural theology convention that nature is always ordered and designed for the good of humans.

In particular, Melville's ekphrastic "Rock Rodondo" implies that nature is a realm where humans have little to no influence at all. The Rock offers a "comprehensive view of the region round about,"[26] phrasing that recalls Humboldt's "general views [that] lead us . . . to recognize in the plant or the animal not merely an isolated species, but a form linked in the chain of being to other forms either living of extinct."[27] The Rock offers a zonal perspective of the ocean and earth at large and provides a gathering place for species that have little to no interaction with humans:

> The tower is the resort of aquatic birds for hundreds of leagues around. To the north, to the east, to the west, stretches nothing but eternal ocean; so that the man-of-war hawk coming from the coast of North America, Polynesia, or Peru, makes

---

[26]. Herman Melville, *The Piazza Tales and Other Prose Pieces: 1839-1860*, ed. Harrison Hayford, Hershel Parker, and G. Thomas Tanselle, *The Writings of Herman Melville: Volume 9* (Evanston, IL: Northwestern University Press, 1987), 133. Hereafter cited parenthetically as *PT*.
[27]. Alexander von Humboldt, *Cosmos: A Sketch of a Physical Description of the Universe*, trans. E. C. Otté, vol. 1 (Baltimore: Johns Hopkins University Press, 1997), 42; see also James Dwight Dana, who uses "general views" to signal the ecological, geological perspective he had learned from Humboldt. *United States Exploring Expedition: Geology*, vol. 10 (Philadelphia: C. Sherman, 1849), 615.

> his first land at Rodondo. And yet though Rodondo be terra-firma, no land-bird ever lighted on it. Fancy a red-robin or a canary there! What a falling into the hands of Philistines, when the poor warbler should be surrounded by such locust-flights of strong bandit birds, with long bills cruel as daggers.
>
> I know not where one can better study the Natural History of strange sea-fowl than at Rodondo. It is the aviary of Ocean. Birds light here which never touched mast or tree; hermit-birds, which every fly alone, cloud-birds, familiar with unpierced zones of air. (*PT*, 134-135)

Seeking language to describe the Rock's geological form, Melville compares it to the "famous Campanile or detached Bell Tower of St. Mark," similar to how he likens the aged tortoises of the Galápagos to "Roman Coliseums in magnificent decay" (*PT*, 131). He draws on Roman Catholicism's historic grandeur to convey a sense of everlasting sameness, with no apparent loss for the bird species that convene on the isles and fly among "unpierced zones of air." The creatures that inhabit the archipelagos inspire a feeling of "dateless, indefinite endurance" (*PT*, 131), and nature punctures anthropocentric timescales with its geological processes and zonal interconnections.

The human characters who do chance upon these isles experience nature's profound indifference to human life. Melville posits the area as an inferno, where several characters undergo trials and struggle to survive as they experience humanity's cruel instincts in the face of such "emphatic uninhabitableness" (*PT*, 126). The widow Hunilla, for instance, cleaves to her crucifix after losing her husband and brother in the capricious tides near the isles, and the narrator asks if her faithfulness in the midst of such tragedy reveals heaven's own indifference: "Ah, Heaven, when man thus keeps his faith, wilt thou be faithless who created the faithful one?

But they cannot break faith who never plighted it" (*PT*, 154-5). This bleak line suggests that Providence, at least that which is discernable in nature, has no real obligation to humans. If, as conventional forms of natural theology had implied, Providence is tantamount to the character of God that can be discerned from the natural world, Hunilla's clinging to her crucifix comes as a strange, even unnatural devotion to her Christ in an eternal inferno that seems set against her good. Her Catholic devotion is strange for Melville, but he cannot easily write it off as silly: he sees that her faith is grounded in suffering rather than imperialistic triumph, and after she is rescued, he vindicates her with a Christ-like entrance into Payta on a "small gray ass" (*PT*, 162).

The Enchanted Islands attract characters who have an insatiable desire for dominion and use religion to justify their conquering and possessing. Sketch seven tells the history of Charles' Isle and the "Dog-King" who cajoles sailors to abandon ship. The renegades eventually overthrow the King but then establish a "permanent *Riotocracy*" that provides "another illustration of the difficulty of colonizing barren islands with unprincipled pilgrims" (*PT*, 149). Melville does not elaborate on why they are pilgrims, whether he means the word satirically or simply to distinguish the colonists from the Spanish empire and the new state of Peru. But these pilgrims clearly are driven by quite different motives than religious liberty. On Hood's Isle, the hermit Oberlus forces the land to produce "degenerate potatoes and pumpkins," suggesting a twisted, diabolic commitment to agrarian dominion (PT, 163). While trying to enslave a Black man, the hermit is captured and severely whipped by an English smugglers who, in turn, take his few possessions and burn his hut and garden (*PT*, 163). The Hunillas of the world thus dwell in a world where the dog-kings, Oberluses, and English smugglers impose their possessive machinations on the cursed archipelagos. As Michael Jonik observes, "in contradistinction to the *humilitas* exhibited by Hunilla in her animal relations [she keeps dogs on the island], the *vanitas*

of Oberlus enlists the animal [he calls his subjects 'garter-snakes'] to reassert his anthropocentric dominion, and to dehumanize the people over whom he takes this domination."[28] Melville presents this natural world beyond the human as a realm that imperialists are drawn to contain and possess.

In these sketches, Simms would have encountered an example of a Humboldtian aesthetic of decisively non-anthropocentric zones that challenges the notion that nature is always designed for human good. Simms similarly situates his own "Charles-town"—possibly linked in name to Melville's Charles' Isle, which likely refers to Charles II's reign—in an ambivalent natural world that settler colonists seek to bring to order through violence. In *Cassique*, the natural world at first seems destined for Anglo-American possession and to develop gradually into the future home of the South's Boston. But the novel, at the same time, integrates a more contingent world of zones, or, as Simms prefers, *provinces* that are ecologically interrelated and possibly developing over time through species' migration and competition. Moreover, some characters in the novel seem to regret how they have imposed their will on the land and Native peoples. While at times both Melville and Simms seem to imply that the natural world authorizes imperialism—humans must impose their will on nature and other people, lest they too be destroyed—the ambivalence in their works suggests other possibilities as well. Melville and Simms were contending with the secular telos that the new science would effectively clear the air of religious approaches to nature. Melville's pessimism borders on despair, and Simms's ultimately subscribes to a more positive historical trajectory in which white Southern men triumph. Yet both of their works illustrate how, in the age of Humboldt, religious schemes of nature

[28]. Michael Jonik, *Herman Melville and the Politics of the Inhuman* (New York: Cambridge University Press, 2018), 121.

sometimes developed more insidiously, often according to racialized logic, and belief in a designed natural world ramified into competing understandings of providential action.

The Agassiz-Bachman Debate over Humboldtian Ecology

Cassique dramatizes the tension between a divinely-guided natural world and a more Humboldtian, potentially amoral vision. The novel evoked terms from the early 1850s debate in Charleston between Agassiz and Charleston's own Bachman, both of whom were influenced by Humboldt. Their debate centered on racial origins and the problem of geographical distribution as applied to humans, but these scientists were also sparring over how to reconcile Humboldtian ecological science with natural theology. Agassiz claimed to fill in the gaps Humboldt left behind by supplementing his mentor's science with a Platonic theism. He believed all of nature was distributed into distinct provinces set in place at the original moment of divine creation. Agassiz's theory provided the scientific backing for the American School of Ethnology that promoted polygenesis, the theory of multiple centers of creation and different species of humans. Bachman, a Lutheran pastor, held the more theologically rigorous ground of monogenesis, species derived from a single point of origin that then migrated to different provinces, and he took great pains to show that Humboldt never strayed too far from Scriptural teachings. In defending Humboldt, though, he evoked the specter of a contingent, possibly amoral universe. And although Bachman held the view most approximate to Darwin's theory of origins, he still upheld slavery as sanctioned by the Bible. *Cassique* traffics in these layered ambivalences.

Agassiz and Bachman were major scientific players on a national stage, highly regarded for their technical expertise in Humboldtian science and their respective fields of zoology and

ornithology.[29] In what follows, I provide a more in-depth summary of their debate as it pertained to Humboldtian science, a debate that Simms knew well in soliciting Agassiz's reply to Bachman's natural history publications.[30]

Bachman, the most well-known of the Charleston naturalists, had met Humboldt during the latter's visit to the US in 1804, after which they corresponded regularly. When Bachman received leave from his parish in 1838 to travel overseas for his health, he visited Humboldt in Berlin, and in Freiburg he gave a talk at an international meeting of naturalists on the state of natural history in the United States. Swiss scientist Agassiz, at that time struggling to make ends meet, and some 600 other naturalists were in attendance.[31] Bachman returned to Charleston with new motivation to finish his collaborative work with John James Audubon on his *Quadrupeds of North America* (1850-1854). Through this collaborative process, members of the American scientific community began to learn of Bachman's significant contributions to the study of mammals through papers he presented and published under both of their names, helping solidify his reputation as one of the foremost US naturalists.[32]

Agassiz moved to the US in 1846, and his immensely popular lectures rejuvenated his scientific career. By all measures he was quickly becoming America's most famous scientist. In 1847 he visited Charleston and gave a talk to the Charleston Literary Club, an event that set off a debate with Bachman, who was a strong proponent of monogenesis. In 1850, Charleston hosted the third annual meeting of the American Association for the Advancement of Science. By that

---

[29]. See Irmscher, *Louis Agassiz*; Stanton, *The Leopard's Spots*, 100–136; Stephens, *Science, Race, and Religion in the American South*; Louis Menand, *The Metaphysical Club* (New York: Farrar, Straus and Giroux, 2001), 97–148; Walls, *The Passage to Cosmos*, 191–97.
[30]. 1 July 1850 to John Young Bassett, in Simms, *Letters of William Gilmore Simms*, 1952, 3 (1850-1857):45.
[31]. Stephens, *Science, Race, and Religion in the American South*, 33–35.
[32]. Stephens, 39–59.

time Bachman had finished writing his *Doctrine of the Unity of the Human Race Examined on the Principles of Science* (1850), so that when Agassiz returned to Charleston for the 1850 AAAS meeting, he had his response ready in book form.[33] Laura Dassow Walls has claimed that Bachman was the only white American scientist, North or South, who had the courage to take on publicly the polygenesis team of Samuel Morton, Josiah Nott, George R. Gliddon, and Agassiz.[34]

But Bachman's *Unity* did more than refute the polygenesis argument of multiple species of humans derived from several points of origin. *Unity* discredited polygenesis by employing Humboldt's science of geographical distribution and exhibiting Humboldtian, interconnected views of the Charleston environs. Indeed, both scientists relied on geographical science they had learned from Humboldt. They marshaled the writings of the famous German scientist for their opposing ideas on how nature was "distributed": Agassiz claimed by immutable divine fiat, while Bachman appealed to secondary natural forces still at work in the present. A keyword in this debate was *provinces*, which Agassiz in particular used to delineate species zones and the geographical features that either controlled the distribution of life or, according to Bachman, provided boundaries where natural life converged.

As early as 1845, Agassiz had culled *province* from Humboldt's plant geography. His most infamous intervention using geographical distribution to address racial origins was an essay

---

[33]. In the ensuing months and years after the initial 1847 discussion, the Literary Club continued debating the origin of the races. See Stephens, "The Literary and Philosophical Society of South Carolina: A Forum for Intellectual Progress in Antebellum Charleston," 171. Bachman himself reported that "the subject being full of interest was discussed at several successive meetings, two or three of which were occupied in an examination of the question on purely scientific grounds." John Bachman, *The Doctrine of the Unity of the Human Race Examined on the Principles of Science* (Charleston, SC: C. Canning, 1850), 3.

[34]. Walls, *The Passage to Cosmos*, 193. In stating that Bachman was the *only* American scientist to take on the polygenesis group publicly, Walls overlooks how Black physician James McCune refuted the racist ethnology using biogeographical science (see coda).

on natural provinces he contributed to J.C. Nott's and George Gliddon's *Types of Mankind* (1854).[35] Here Agassiz foregrounds his theory of zoological provinces in relation to racial origins, claiming that "among the animals which compose the fauna of a country, we find types belonging exclusively there, and not occurring elsewhere." The scientist ought to circumscribe provinces by the "combination of species which they enclose, rather than according to the element in which we find them."[36] That is, Agassiz believes that "types" in a given area, rather than distinct topographical features, are a more exact way to demarcate zoological provinces; environmental boundaries are, he notes, too permeable. Significantly, Agassiz never details the exact ranges of a *region*, *zone*, or *province*. He uses the terms interchangeably to speak of immutable limits without having to pin them down precisely. Yet he knew that the very attempt to group species into geographical forms aligned him with Humboldtian science. In his later *Essay on Classification* (1857) he makes the connection even more explicit: there he cites Humboldt's *Essai sur la géographie des plantes* (1807) in support of his theory of special creationism, though Humboldt would certainly have disavowed the link.[37] In Agassiz's influential lexicon, *province* radiates with all the glow of the new geographical science, while

---

[35]. Agassiz had spoken up in support of polygenesis during the AAAS meeting in 1850, and he soon after published essays in the Unitarian *Christian Examiner* titled "Geographical Distribution of Animals" (March 1850) and "The Diversity of Origin of the Human Races" (July 1850), both of which approached racial origins from the perspective of geographical distribution. However, his essay in *Types of Mankind* marked his fullest treatment of the connection. Agassiz's essay emboldened Josiah Nott to write his own theory of polygenesis based on geographical distribution in the first chapter of *Types*, entitled "The Geographical Distribution of Animals, and the Races of Men." Josiah Clark Nott and George R. Gliddon, eds., *Types of Mankind* (Philadelphia: Lippincott, Grambo & Co., 1854), 62–80.

[36]. Agassiz, "Of the Natural Provinces of the Animal World and Their Relation to the Different Types of Man," lix.

[37]. Agassiz, *Essay on Classification*, 16.

keeping intact a providential scheme in which the subjected races remain in their place as distinct species derived from separate centers of creation.

In contrast, Bachman followed Humboldt's lead to illuminate a complex, more unruly theory of distribution. He never uses the term *province*, preferring instead to illustrate geographical distribution by citing examples from his experience of the Charleston environs and from his correspondences in the scientific network to depict a natural world more interrelated and dynamic than Agassiz's. Bachman notes that, according to the fossil record, the ranges of some species have clearly changed over time, and to prove this point, he enumerates species of fish, birds, mammals, and plants that are either unique to North America or have some direct link to migratory paths across the ocean or the Bering Strait. He gives two vivid examples from Charleston to portray the varying pathways of species. "The botanist residing in the vicinity of Charleston who wishes to study the grasses of the northern and middle States, may find them on the farms on Charleston neck, where they have been disseminated by the aid of the manure brought from the city where our horses are fed on northern hay."[38] Besides illustrating geographical interconnections between states, the example underscores the impact of human action on plant life. His second Charleston example likewise emphasized permeable geographical forms: any Southerner, he says, can disprove the folk theory that swallows congregate during the winter at the bottom of lakes or rivers by observing the bird species that fly over Charleston "by hundreds of thousands in their semi-annual migrations." Bachman says in his boyhood he tested the hibernation theory by plunging living birds underwater, and, after a few minutes, they were found "quite dead, and no water or warmth or electricity could

[38]. Bachman, *The Doctrine of the Unity of the Human Race Examined on the Principles of Science*, 252.

resuscitate them."[39] His examples of migration and interrelated distribution were of the sort that would have delighted his mentor Humboldt, who once speculated that the minute seeds of cryptogamous plants travel across the ocean in clouds.[40]

Agassiz and Bachman both connected their theory of distribution to providential action. Agassiz infused his theory of provinces with a religious view of a Mind that had created species and environments to which they are perfectly adapted. He preferred to speak liberally of a "Supreme Intelligence," using broad names for the Deity in an attempt to avoid the religious sectarianism he so detested.[41] For some proslavery Southern intellectuals such as Morton, Gliddon, and Nott, this was liberal religion they could use: Agassiz, a protégé of Humboldt, in effect correcting his teacher's failure to acknowledge a Creator or a divine plan for nature. The polygenesis camp found Agassiz's use of the latest science of geographical distribution persuasive due to scientific expertise and seeming liberality in matters of religion.

Bachman, however, reviewed Nott's and Gliddon's *Types* in the Charleston papers, and he had no patience for what he perceived as their "grand design of discrediting the Christian religion and heaping on the Holy Scriptures all manner of epithets of derision and contempt."[42] Bachman knew he held the theological high ground that said all humans descended from Adam and Eve and all of nature had originated in Eden, but public opinion of Bachman's arguments was quite the paradox. Southerners would not accept his view of unity—his book was widely

---

[39]. Bachman, 262.
[40]. Humboldt's speculation is noted in Bachman, 255.
[41]. Agassiz, *Essay on Classification*, 21.
[42]. John Bachman, "A Notice of the 'Types of Mankind,' with an Examination of the Charges Contained in the Biography of Dr. Morton, Published by Nott and Gliddon," *Charleston Medical Journal and Review*, September 1854, 3. For the extensive back and forth in the Charleston papers between Bachman and the authors and supporters of *Types*, see Stephens, *Science, Race, and Religion in the American South*, 197–217.

renounced, despite his adherence to the biblical ethics of master-slave relations and a hierarchy of races—but neither could they get on board with Agassiz's more liberal religiosity. Agassiz was sometimes labeled an "infidel" for his quips against Genesis and what he deemed the "primitive" story of Adam and Eve.[43] In this politically tense environment, Bachman seemed to sense that the least he could do was defend his understanding of Humboldtian science.

In an appendix to *Unity*, Bachman addresses the question of whether Humboldt's geographical is inherently atheistic. The great world traveler and comparative naturalist "expresses similar views as ours in regard to the distribution of animals and plants in the several zoological regions," and he perpetuates no doctrines "subversive of Christianity" or "opposed to the laws of nature."[44] Bachman insists that Humboldtian geographical science displays the works of God over geological time and into the present age. With this appendix, though, he subtly confers a new way of understanding *Providence,* a word he uses elsewhere in *Unity* to marvel at creation's design and arrangement.[45] Rather than supporting the design argument with passages from Genesis, Psalm 19, or Romans 1, as previous natural theologians had done, Bachman's appendix predicates providential design on the recently expanded "map of ancient history," "the teaching of the papyrus rolls, and the monuments of extinct races [that] have been laid open before us by geographers, philologists, and men of science." Humboldt had made advances interpreting the book of nature, which in turn, lead to a better knowledge of that sacred volume containing the "truths of heaven, revealed to an erring world."[46] Here Bachman situates natural theology in the context of a Humboldtian cosmos of becoming, and he subordinates design to a

---

[43]. For Agassiz's liberal critiques of Scripture, see Numbers, *Darwinism Comes to America,* 28.
[44]. Bachman, *The Doctrine of the Unity of the Human Race Examined on the Principles of Science*, 306–7.
[45]. Bachman, 23, 239, 312.
[46]. Bachman, 292.

historical world of vast interconnections. The Creator now works in a web of relations. But whether that web was entirely benevolent remained somewhat unclear in Bachman's rendering, as he leaves sufficient room for scientists to uncover new data about nature's intricate mechanisms.

To summarize, Bachman and Agassiz took what they perceived as the most important development in Humboldt's science—geographical distribution—and infused it with a providential scheme that *Cosmos*'s ecological flux and developmental narrative did not clearly support. These scientists used *province* to index Humboldt's science and *Providence* to contain the new, potentially amoral valences of the new cosmos.

And, finally, both of them truncated or ignored altogether Humboldt's ardent insistence that the races were not separate species. "All are in like degree designed for freedom," Humboldt had stated at the end of *Cosmos*'s first volume. "While we maintain the unity of the species, we at the same time repel the depressing assumption of superior and inferior races of men."[47] Neither US scientist was willing to follow Humboldt on this point. Bachman insisted that the Bible supported slavery; Agassiz, that the new geographical science pointed to multiple origins and separate species, a view that, with some maneuvering, could be reconciled with Genesis. Yet Humboldt would not invoke Providence except to say all are "designed" for freedom. Taking a more unequivocal approach to God in nature, the US scientists gained audiences for their providential ecologies that constituted a new kind of natural theology more attuned to geographical science and interconnected species.

---

[47]. Humboldt, *Cosmos*, 1997, 1:358; Philip S. Foner, "Alexander Von Humboldt on Slavery in America," *Science & Society* 47, no. 3 (1983): 330–42.

A Beautiful But Peculiar Province

Simms's *Cassique* manifests the moral and political ambivalences of Humboldtian ecology. It does so through a dialectic approach to history, which Simms learned from Cooper and adjusted to accord with the circumstances of the South and the new science that opened the possibility of an amoral, contingent natural world. Literary historians from George Lukács to George Dekker and Lloyd Pratt have examined the historical romance genre's dialectic, Hegelian shape.[48] Cooper's and Simms's novels enact versions of this dialectic, with American characters who overcome European stasis and decadence with the help of a woodsman who fades into oblivion after embodying certain indigenous traits deemed unacceptable in the new republic. According to Mary Ann Wimsatt, Simms's historical romances "impose the interpretation of his age upon the events of the past and . . . convey his sense of a providential movement in history by reference to an action whose shape is completed and whose pertinence to the present is clear."[49] A US republic, wherein the South is most representative for Simms, emerges through overcoming European corruption and synthesizing Indigenous lifeways, ostensibly without succumbing to relentless violence.

On the surface, *Cassique* seems to complete the dialectic: corrupt Spanish and Cavalier types are supplanted by a newly efficient, morally progressive leader in Edward Berkeley. The

---

[48]. George Lukács, *The Historical Novel* (London: Merlin Press, 1962); George Dekker, *The American Historical Romance* (New York: Cambridge University Press, 1987); Lloyd Pratt, *Archives of American Time: Literature and Modernity in the Nineteenth Century* (Philadelphia: University of Pennsylvania Press, 2010), 63–124.

[49]. Wimsatt, *The Major Fiction of William Gilmore Simms*, 39. Cf. David Moltke-Hansen, "Ordered Progress: The Historical Philosophy of William Gilmore Simms," in *"Long Years of Neglect": The Work and Reputation of William Gilmore Simms*, ed. John Caldwell Guilds (Fayetteville: University of Arkansas Press, 1988), 126–47; Sean R. Busick, *A Sober Desire for History: William Gilmore Simms as Historian* (Columbia, SC: University of South Carolina Press, 2005), 4.

English led by Edward defeat the Kiawah and all but eradicate the Indigenous ecological traditions of the Charleston environs, the roving Harry Calvert functioning as the woodsman figure who mediates the Old and New Worlds and fades into the background as the New emerges. An English mercenary thought to be lost at sea, Harry arrives at Charleston and discovers that his true love, Olive Masterson, has married his brother, Edward, who initially attempts a more philanthropic approach to the Kiawah Indians from whom he received the title of "cassique." Harry's arrival also marks political changes in Charleston. Charles II has outlawed piracy in an attempt to negotiate with the Spanish crown in what was known as the Treaty of Madrid, while the English relationship with the Kiawah people has grown tenuous as the colony continues to expand. Now a wanted man, Harry seeks to forge a black market existence in Charleston, selling his wares and keeping tabs on the Kiawahs' movements. He must reconcile his commitment to his Spanish, West Indian born wife, Zulieme, who is his beautiful but to his mind, childish, with his abiding love for the English Olive. Despite initial misgivings, Harry decides to help his brother defend his estate against the Kiawah, and he thereby ensures the dialectical framework of history as a divinely unfolding narrative in which he plays the mediating role. At one point, Harry imagines a "special Providence interposing" on England's behalf (177). Edward will stay to build up Charleston, and Harry the woodsman figure departs for "yet sunnier shores" (530).

Yet the pessimism of Simms's protagonist and narrator complicates the providential pattern, as Simms critics have sometimes intuited.[50] Through Harry's conflicted loyalties and

[50]. Some Simms scholars attribute Harry's and the narrator's pessimism to Simms's anticipation of literary realism, but I see it more as a Melvillian break from the providential frame of the romance genre while retaining essentially Romantic elements, including the Humboldtian sense of interconnection. See Wimsatt, *The Major Fiction of William Gilmore Simms*, 188; Kevin Collins, "Experiments in Realism: Doubling in Simms's 'The Cassique of Kiawah,'" *The*

passions, the novel casts doubt on the settler colonial violence that will eventually contain nature's excessive ecological energies. As Harry confesses, "We are in the hands of a power in which our hands are powerless," and he longs to break outside the providential mold (123). Harry's persistent desire for a more variegated, ecological world, evident in his eventual rejection of Charleston and decision to be faithful to his West Indian wife, creates ambivalence in the providential flow of history. The novel's opening scene establishes a Humboldtian vision in which nature is characterized more by competition and transformation than stable schemes of benevolent natural order. Harry's yearning for a more interconnected, mixed identity than what English colony can offer him connects with this opening vision and even suggests a certain regret for the violence that diminishes nature's energies. Nonetheless, *Cassique* ultimately shows how the specter of an amoral universe inspires a new synthesis of Providence and emergent ecology: a possessive providential ecology that will dialectically control the energies of nature, Indigenous cultures, and racial difference in the New World.

In *Cassique*, Providence operates in a natural world less clearly working for human good in its various operations. Simms was a reader of Romantic and Victorian poetry, including Byron, Coleridge, and Tennyson, and through their influence, he had long understand nature as run by powers that "hang about our lives": "their subtle associations are wholly beyond our control—teaching a condition far more profound and mysterious than any thing which lies within the ordinary provinces of Nature." In a 1854 speech, he contrasts nature's "ordinary provinces" with a profound interrelatedness. A "wondrous mystery . . . lurks in that silent earth"; the "work

---

Southern Literary Journal 34, no. 2 (2002): 1–13; Collins, "The Cassique of Kiawah: A Colonial Romance."

of Nature is perpetually going on within."[51] *Cassique* makes this interrelated vision of nature— mysterious, contingent, and often capricious— central to the providential development of Charleston as a *province,* at once a historical colony of England and a natural area of organic life richly interconnected to other provinces.

The novel's depiction of nature commences with a magnificent opening scene, Simms's own Rock Rodondo that similarly blurs the boundaries between land and sea and casts nature as profoundly non-anthropocentric. Critics have read the opening scene as initiating a contrast between primeval nature and human fallenness[52]; yet, by virtue of its Humboldtian valences, the scene refuses purely Edenic terms and instead delights in a natural world of constant transformation and potential chaos that settler colonists will finally bring to order. In this way, the scene merges Bachman's interrelated nature and Agassiz's more deterministic providentialism.

The narrator begins, "Suppose the day to be a fine one, calm, placid and without a cloud," knowing that "storm and billow" and the "deluging vans of the equinox" are possibilities, too (1). An extended imperative places the reader in a scene of the tranquil weather that the narrator recognizes is one possibility among others in a region known to be suddenly transformed by tropical weather. The reader experiences a momentarily delightful view from a

---

[51]. William Gilmore Simms, "Poetry and the Practical [1854]," in *The Simms Reader: Selections from the Writings of William Gilmore Simms,* ed. John Caldwell Guilds (Charlottesville: University Press of Virginia, 2001), 336, 333.

[52]. Anne Blythe comments that the opening scene "achieves majesty, awe, and a profound sense of the interdependence of land and people"; "untamed primeval nature announc[es] a major theme of the book." John Caldwell Guilds similarly contends that the opening scene sets an Edenic tone and atmosphere: "the quiet elegant majesty of the wilderness contrasting with the loud bloodthirsty violence of civilized man." Blythe, "William Gilmore Simms's *The Cassique of Kiawah* and the Principles of His Art," 40; John Caldwell Guilds, "Introduction," in *The Cassique of Kiawah: A Colonial Romance,* by William Gilmore Simms, ed. Kevin Collins (Fayetteville: University of Arkansas Press, 2003), xxiii.

periagua (a word that initiates the creolization that Simms will link to the ecological) as it makes its way down the Carolina coast:

> The scene is so peculiar, so individual, so utterly unlike that kind of scenery from which the traveler usually extorts his inspiration, that something needs to be said to make us understand the sources of beauty in a region which so completely lacks in saliency, in elevated outlines, in grand mountainous masses, rugged defiles, and headlong cataracts. Here are none of these. …
>
> [You are] almost entirely landlocked the whole voyage; all along these shores, the billows of the sea, meeting with the descending rivers, have thrown up barrier islands and islets, that fence in the main from its own invasions. Here are guardian terraces of green, covered with dense forests, that rise like marshalled legions along the very margins of the deep. Here are naked sand-dunes, closing avenues between, upon which you may easily fancy that the fairies gambol in the moonlight. Some are sprinkled with our southern palm-tree, the palmetto; others completely covered with this modest growth; others again with oak, and pine, and cypress; and there are still others, whose deep, dense, capacious forests harbor the red deer in abundance; and, skirting many of these islets, are others in process of formation; long strips of marsh, whose perpetual green, contrasting, yet assimilating beautifully with the glare of sunlight on the sea, so relieves the eye with a sense of sweetness, beauty, freshness, and repose, that you never ask yourself the idle question, of what profit this marsh—its green that bears neither fruits nor flowers—its plumage that brings no grateful odor—its growth without

> market value? Enough, you say or feel, that, in the regions where you find it, it is a beauty and delight. (2-3)

The scene is a William Bartram-esque moment of profusive, fecund nature meant to delight the reader. Building on the South's natural history traditions, the narrator parses the scene into microforms within a single province and thereby invokes the work of Humboldt, whose theory of species zones as shaped by climate and geological forces informed Bachman's and Agassiz's science. According to Simms's narrator, some of the islets are host to palmetto trees; others, to mature hardwood harboring life in abundance, herds of deer and the "wandering pilgrims of the crane, the curlew, the pelican, and duck" (3). Still others are marsh islets "in process of formation." The narrator has the reader pause on this last form. The marsh islets reveal nature in a state of becoming. They come into being through nature's constant growth, but they are also sacred in some sense, drawing out the narrator's biblically resonant question, "what profit this marsh—its green that bears neither fruits nor flowers—its plumage that brings no grateful odor—its growth without market value?" Echoing Jesus's statement, "For what shall it profit a man, if he shall gain the whole world, and lose his own soul?" (Mk. 8:36), Simms implies that the marsh islets provide a kind of spiritual sustenance, not because they have been fixed from the beginning of time but because they issue from nature's constant transformations, likely from the destruction wrought by tropical weather. In the whole scene but especially in the marsh islets, Simms combines Bachman's more interrelated scheme with Agassiz's providential forms, and he beckons the reader to take in the numinous vision while it lasts.

To the eye that sees this scene aright, as a sacred domain consisting of interrelated life, the low country of Charleston is "a beautiful but peculiar province" (5). Or, beautiful *because* peculiar, "baffling all powers of description" (2). *Province* signals an alliance with Agassiz, who

believed that he had located immutable provinces of nature ordained by the Supreme Intelligence, while Bachman, siding with Humboldt, implied that geographical forms can change, overlap, and disintegrate. If Simms's opening scene suggests Bachman-esque ecological variability, the introduction of the characters and the plot reveals a reluctance to relinquish the more static, Agassizian notion of Providence. The narrator expresses the hope that with "God's blessing," humankind "shall convert" nature into "happiest homes" (4). Love can take refuge, says the narrator, for God "hath hallowed" the country "for the uses of Humanity" (6). Here Simms begins to collapse untamed nature into Anglo-American imperialistic history.

Swiftly, then, the numinous vision aggregates with the violence of humankind. In Simms's novel, ecological interconnection coincides with the transformations of nature that Europeans enact in managing the diverse provinces of the New World through the networks of colonialism:

> flowers, fragrance, smiling waters, and delicious breezes, that have hurried from the rugged shores of the Cuban, or the gradual slopes of Texas; or farther yet, from still more beautiful gardens of the South . . . look where you will, or as you will, and *they unite for your conquest*. (4; emphasis added)

The New World is a "wild empire," not a blissful Eden (5). The epigraph from Byron prepares the reader for this collapsing of nature into colonial history in which natural law loses its moral force: "Away! Away! / Once more his eyes shall hail the welcome day; / Once more the happy shores without a law" (1). Similar to Melville's Enchanted Isles, this province in flux is also a prime setting for imperialism. The mainland's tranquil aura temporarily calms Harry, but "without a law" initiates the ambivalence that also begins to develop around his protagonist's supposed liberty.

Harry's schooner, The Happy-Go-Lucky, a name that signals his desire for a transient life, allows him to view nature from an ecological standpoint but also to act with sudden violence to conquer and possess. In the opening scene the Happy-Go-Lucky glides into a secluded bank near the confluence of the Ashley and Edisto rivers. In the second chapter the narrator compares the vessel to that in Coleridge's "Rime of the Ancient Mariner," citing lines from the poem: "there *was* a ship" (13). An "amalgam of nations," a "congruous community," the schooner is a place for misfits and various races to mingle under Harry's leadership (13-14). However, the Coleridge epigraph also suggests the possibility of impending doom, since in the poem everyone but the speaking mariner drops dead, victims of the curse he brings upon them by shooting the albatross. The novel charts two possible paths for Harry and his schooner. He can steer his ship of nations to Charleston and attempt assimilation, or he can sell his wares and move on to the Caribbean, where he can live a wayfarer, creole existence with Zulieme.[53] But when he discovers that his first love, Olive, is still alive, he is torn between continuing his creolization with Zulieme or pursuing a fantasy that might restore his English identity through Olive. Tellingly, Harry's domestic quarters in his schooner hold English furniture and luxuries, unusual for a mercenary. While participating in an English lifestyle underwritten by imperialism, from the vantage of the Happy-Go-Lucky he can also glimpse what other English colonists often fail to see, that they are building their city on interconnected, uncontrollable nature with violence and racial bondage that

[53]. As Ralph Bauer and José Antonio Mazzotti observe, early modern Europeans tended to view creolization as evidence of cultural degeneration, though by at least James Fenimore Cooper's time, Europeans were beginning to understand "creole" as the emergence (through imperialism) of a new American subject. Simms registers this ambivalence in Harry, whose marriage to Zulieme is at once legitimate and morally and politically suspect. Ralph Bauer and José Antonio Mazzotti, eds., "Introduction: Creole Subjects in the Colonial Americas," in *Creole Subjects in the Colonial Americas: Empires, Texts, Identities* (Chapel Hill, NC: The University of North Carolina Press, 2009), 1, 51.

can never bring total harmony to the region. They subscribe to the possessive providentialism that strives to contain the low country province, whereas he has experienced a more dynamic, ecological world.

The schooner's liminal position helps reveal that Charleston's settlers cannot control nature entirely, try as they might. From the vantage of the schooner, Simms establishes nature's omnipresence in early Charles-town: "The solid citizens of the present Charleston, when they look at the marble walls of the new custom-house, will perhaps be surprised to be told that the said creek ran under the city under the said fabric, and made its way, somewhat sinuously, into the very heart of town" (421). The narrator adds that one can dig down twenty feet between the Roper hospital or the Catholic cathedral and still discover the remaining "ooze" of the old Boggy Quarter, as it was once called (80). Likewise, "the path" that would become the Battery was "very much within the original grace of Nature," simply cut through the forest with "branches [that] met and interweaved across the road, festooned with moss, and spanned the space between" (118). In 1684, Charleston had a "rude, wild, irregular . . . topography," some of which was entirely impassible in bad weather (381). Through the schooner gliding in and out of waterways near the town, Simms emphasizes nature's presence in areas considered settled. He shows that a single province is always joined to the whole of nature, changing with the weather and the shifting sand banks and mud shoals on which the English colony was precariously built.

Amidst this natural world of contingency and flux, Harry will struggle to understand how Providence could possibly work for the good of humans. But rather than resign himself to nature's whim, he will eventually offer his help to the English and impose his will on the land and Indigenous peoples. The woodsman Old Gowdey gives Harry advice that echoes Cooper's ideal Christian woodsman who employs "the reason, and the common sense, and the natural

truth" in his decisions (165). However, as the plot unfolds, Harry adopts a more ecological, morally ambiguous approach to justify the pursuit of what calls his passion, the side of him that delights in the thrill of danger and violent encounter, including a biblically illicit desire for his brother's wife, according to Leviticus 20:21. In this way, the settler-colonial mastery of the races and nature ungirds the novel's romance plot. As Harry and Zulieme quarrel, and Olive develops a despondent sickness, Harry and Olive fantasize a return to an original bliss, a fantasy corresponding with the containment of ecological flux through willful, violent means.

Passion and the Mysteries of Providence

In *Cassique*, "passion" registers those "chaotic provinces" in the hearts and minds of characters (175); thus passion, by analogy, relates to the storms and ecological caprices of nature. All of the novel's characters reside within the dual nature of seventeenth-century England, the Cavalier and the Puritan, and, on a broader scale, within the categories of the moralistic English and the seemingly more passionate Spanish. At first, Harry's wife Zulieme appears to be a character driven entirely by passion, lacking the capacity for intellectual deliberation, but in fact it is her husband who will let his passion overrun him while Zulieme, subduing her passions, will offer comfort to Olive on her death bed. In her sympathizing with the woman Harry always loved foremost, Simms shows his capacity for occasionally overrunning the Agassizian "types" of humanity.

On the whole, however, the novel relies on a clear racial hierarchy in which characters are more or less in need of Anglo-American paternalism. The Kiawah people have made a "very small advance beyond the condition of the mere barbarian": they serve to remind the white man of his primitive roots with their "better idea of propriety" because they focus their energies on two great studies, how to hunt and fight, and achieve those ends with better means than whites

do despite "all our gains of learning and science" (218). Sylvia, Zulieme's enslaved African maid, exemplifies how Africans should be quick to entertain and dance for whites: "Let [African slaves] sometimes condescend to a dance and fling with their ancient master, if only to show that they do not pride themselves upon their elevation beyond the usual scale of humanity!" (45). Poor whites, typically Irish in this novel, are prone to drink, fight, and mutineer stupidly: when crew members of the Happy-Go-Lucky briefly raise the Jolly Roger flag, the narrator comments that the Sam Fowlers of the world have been "lapped in crime and suckled in infamy," lacking the wherewithal even to rebel successfully (392). Occasionally, these "types" of mankind provide Simms with boundaries for his characters overrun, as in the case of Zulieme's sympathy for Olive. But Simms places at the top the Harry Calverts and Edward Berkeleys of the world. Other racial groups exist merely to contribute to the larger scheme of Anglo-American providential destiny.

Harry's "passion" contains elements of the Byronic hero (he seeks the "happy shores without a law") and Shakespeare's Hamlet, who struggles to know whether a person has free will in a world of Providence. At one point, Harry cites lines from *Hamlet* to Mrs. Perkins Anderson, his connection to Charleston's burgeoning social life. While Hamlet eventually finds serenity in the belief that "there's a divinity that shapes our ends, / rough hew them how we will," Harry claims to have developed a pessimism exceeding that of Shakespeare's character: "We are in the hands of a power in which our hands are powerless—which heeds little how we hope, or sigh, or dream, or suffer" (124, 123). Harry wrestles with that "Power whose will is absolute" but that, from a human perspective, looks like sheer contingency (124). His practical agnosticism becomes his justification for possessive action. His inner turmoil and hardened experience with

the violence of the West Indian trade prepares him to see certain evidences of the Kiawah preparing an attack on the Berkeley estate, and possibly even on Charleston.

The first few chapters portray the seeming incompatibility between Harry and Zulieme, but Simms gradually reveals these characters as two expressions of one commitment to passion and, with it, a desire for ecological freedom. Without a doubt, the novel casts Zulieme in racist and misogynist terms. She is beautiful "after the Spanish fashion," a Cleopatra, a small "creature" with every look "speaking passion—music's passion, the sun's passion; the passion of storm and fire upon occasion, ready to burst forth without warning and spoil the sky's face, and rage among the flowers" (17). Creaturely, tropical, she "swam rather than walked"; her costume is of a "light, gay green silk" (17). While Harry the Englishman understands himself to be a "stern, dark, careful man," he also declares to Zulieme that his life is one of "passion," but he believes she "knows not what passion is" (63, 53). Zulieme's passion means she longs to visit Charleston and experience its frivolous, essentially European pleasures; his passion means maintaining his freedom and thus approaching the city with caution. Yet both seek a realm of freedom and spontaneity, and it takes the rest of the plot for them to realize the degree to which they are compatible in this sense. They desire, on the one hand, "dancing and delight," and on the other, the "reefs of danger" and "the hurricane for ever on the wing" (65). In their passion, they aspire toward an ideal realm of ecological interconnection, in which markers such as Spanish and English, Catholic and Protestant, dark-skinned and white might overlap and blur together. As Monique Allewaert has shown, colonial racism and exploitation threatened the very "integrity of the human being," but it also inspired new ways to imagine the "forms of power and agency that [develop] at the interstices between human and nonhuman life," a more ecological or "parahuman" view in which agents find themselves imbricated in the life of plants, animals, and

other natural objects.[54] Harry's and Zulieme's passion suggests the appeal of ecological freedom and unconstraint, even as Harry finds himself participating in the larger colonial project that sustains Charleston.

In addition, the novel proposes a division between Harry and his brother, Edward, only to bridge the gap and show that they both use their passion to possess nature and Indigenous peoples toward providential ends. Edward initially believes in "human perfectibility" (103). One of the "newly constituted Carolina nobility," he has high hopes for peace with the Kiawah people (106). Employing the chief's son to "detach him gradually from the life of the woods" is part of his more extensive plan to raise the tribe "from barbarism to the civilizing tasks of culture" (106). On his estate, Edward cultivates an Eden where he is "in possession," but as the narrator puts it, the serpent of Fate creeps in and "ke[eps] out the dove of Peace," for Olive's despondency makes him question whether his plan is working (324). At first, Edward stands for Christian charity, while in Harry's cosmos, stripped of the protection of the English crown, no such moral certainty exists. Over the white cassique's carriage read the words "*Dieu avec nous*," conveying Edward's missionary aspirations (443). He believes his ethics derive from a sacred, ordered universe that carries moral obligations, while in contrast, Harry's world is "seamed with mystery," as John McClure writes in another context. For Harry, life no longer "unfolds under a sacred canopy of ontological givens."[55] Yet the brothers will find a way to unite their passions, conquer the Kiawah, and ensure that Charleston remains in English possession.

Harry sends Zulieme to experience Charleston under the watch of Mrs. Anderson, who tries (unsuccessfully) to upend Harry's marriage because he had previously rejected her own

---

[54]. Allewaert, *Ariel's Ecology*, 6.
[55]. John A. McClure, *Partial Faiths: Postsecular Fiction in the Age of Pynchon and Morrison* (Athens: University of Georgia Press, 2007), 6.

advances. In Charleston, Zulieme has the option to embrace what Mrs. Anderson calls the "legitimacy of the Passions, as asserting Nature, in opposition to the mere arbitrary laws of society" (290). She proves faithful to her husband, and through her, Simms underscores that this passionate Spanish woman has moral limits that the Englishmen have not learned.

The English brothers come to direct their passion toward common enemies, the growing corruptions of Charleston and the threat of the Kiawah, to bring order to the ecological world. The novel sides with Harry's pessimism over Edward's philanthropy; the white cassique comes to see the world through his brother's eyes. Harry, from the vantage of his schooner, elucidates how a city like Charleston is made: while he once found a certain dignity in the piracy business, acting in honor to defend the English empire, he finds he cannot face the goods in Charleston—a "stolen shawl, scarf, ay, jewel, . . won by the strong hand, at the price of blood, in the purple waters of the gulf"—and look away from society's corruptions (93). Here Simms critiques European corruption, decadence, and the violent piracy Harry had once gladly undertaken. Harry now feels his labor is illegitimate, tied to the English crown's compromise with the Spanish empire.

With Harry and Edward both positioned as outsiders, Simms can level a critique at Charleston and the "world" writ large, in which human history might stagnate or even regress: "We doubt if the world improves one jot" (93). His narrator invokes design and developmentalism, echoing terms from natural theology:

> We half doubt whether [the world] was *designed* that it should improve, beyond a certain point; and so we do not so much believe in a millennium as in a regeneration. We are but the germs for a new creation, under a new dispensation,

> and *development* goes just so far—and there an end to the present. (93; emphasis added)

Although Simms's main point is to leverage a critique at "millennialism," which could have referred simply to what he saw as Northern optimism regarding politics and nation-building, he does so by cutting across an Agassizian theory of strict limits to time and space, *types* and *provinces*. "Regeneration" and "germs of a new creation" evokes the more theologically nuanced approach to development in the work of Scottish geologist Hugh Miller and his American counterpart Edward Hitchcock, their shared notion of a future new creation whose seeds could be detected in the present state of nature.[56] The "germ" could also refer to Charleston's colonial history and the mysteriously providential way it grows into the antebellum present.

Indeed, Simms folds this commentary into a larger argument for possessive providentialism. If humans are but the germs of a new creation, and not the final product, then following Harry's pessimism, one should expect conflict in nature and society resulting from human passions and imperfect reason. Permanent happiness is impossible to sustain; passion rules the day. "We are told that the pursuit of happiness, in our own way, is an alienable right," the narrator notes with a swipe at Thomas Jefferson's famous articulation (179). "Men do not deliberately seek happiness at any time," for their passions lead them toward "inferior objects," and perhaps "rightly," the narrator concludes (178). In other words, humans do not seek happiness deliberately because they seem to know intuitively that happiness is a "phantom" (179). Despite this seeming approval of passion over happiness, the novel illustrates that the English brothers' passion leads them to make pernicious assumptions about the Kiawah. Simms,

---

[56]. Hitchcock, *The Religion of Geology and Its Connected Sciences*, 89; Hugh Miller, *The Testimony of the Rocks; or, Geology in Its Bearings on the Two Theologies, Natural and Revealed*, [1857] (New York: John Balden, 1892), 178.

in fact, leaves open the possibility that they misjudged the Natives, even though the plot ultimately suggests that even their capricious passion contributes to the work of Providence in history. Harry assumes that the large Kiawah gathering is not for ball playing or the green-corn dance, large-scale rituals that the white men had previously observed. As Old Gowdey puts it, "It's clear we're to have a risin'!", judging by the "signs," yet later it will become clear that the white men took steps to initiate the violence without seeking to understand their Native counterparts (352).

The novel, at the same time, illustrates the dangers of unchecked passion and ecological energy through Harry's fateful reunion with Olive. Olive's health remains in a constant state of decline, and in her delirium, she wanders into the woods and meets Harry. "A sacred madness" compels him to embrace Olive in a desperate attempt to seize his lost love (330). She collapses from the ecstasy, and Edward, watching their embrace from afar, carries her back to what will become her deathbed. Does Harry kill Olive? What manner of Providence would bring him so close to his destiny, then drive him to destroy what remains of it? Was it the sacred law of passion, which Mrs. Anderson calls the truest law, or Calvert's own willful, amoral renegade tendencies that drew him to take the risk in embracing her frail body? Edward and Harry sort out the circumstances that lead them both to be misled by Olive's mother. Realizing how much they both love Olive—to them, the epitome of pure white womanhood—they reconcile, and just in time. Soon after, the Kiawah threaten the Berkeley estate, and the brothers team together to defend their English colonial honor against what they believe is a disordered people in a disordered natural world.

Edward's final outburst of self-styled philanthropy conveys how possessive providential ecology will work to control the fate of the races and the natural world's fluctuations. Despite his

compassionate veneer, Edward believes in racial hierarchy. Here he meditates on the races, their provinces, and the providential bent of history toward success for the imperializing English:

> There is a nature which the great God of the universe designs for each several place and people. The wild for the wild; else would it never be made tame! But when, in the great forests, the wild beasts shall all be subdued or slaughtered, will the wild man rise to higher uses? Hath his humanity a free susceptibility for enlargement and other provinces? . . . If it may not be thus, then must he perish, even as the forests perish; he will not survive the one use for which all his instincts and passions seem to be made! It is, perhaps, his destiny! He hath a pioneer mission, to prepare the wild for the superior race; and, this duty done, he departs: and, even as one growth of the forest, when hewn down, makes way for quite another growth of trees, so will he give place to another people. Verily, the mysteries of Providence are passing wonderful! (453)

In Simms's rendering, Edward stands at a crossroads in history, though antebellum readers already know which way he will choose. Simms intends Edward's questions at one level to seem charitable, but then capitulate to the disturbing flow of the providence of possession. Edward's supposed philanthropy is exposed for the hierarchy it is: one race dies so that another may inhabit the great forests. God designs each natural province for only one people at a time, from Kiawah to Anglo-American. Edward, in this way, indexes the Agassizian space-time ideals of "provinces" and "types" of mankind. "Verily, the mysteries of Providence are passing wonderful!" But Providence's "mysteries" serve to justify the violence against the Kiawah and ensure the English seize their destiny to inhabit Charleston.

Harry and Zulieme represent the potential of ecological interconnection, and their departing from Charleston forecloses this potential on the mainland. To be sure, Harry's performance at the Battle of Kiawah displays his ruthlessness toward the Natives. When Edward hesitates to join the battle, he exhorts his brother to embrace their destiny: "Hark ye, good brother of mine, none of your philanthropy now! Blood is the law of battle! We must show tooth and nail" (510), lines that evoke Tennyson's natural world "red in tooth and claw."[57] Together, the brothers enter the intense conflict of a natural world always changing and always being transformed by imperialism, a battle initiated by Europeans in at least two ways. The Spaniards first attacked the Cardross colony and joined the forces with the Natives to attack the English, and second, the white mercenary Ligon, while scouting the Kiawah camp, silently kills one of their number. During the battle on the Berkeley estate, warriors on both sides leave Harry and the *Iawa*, the Kiawah priest, to fight in hand-to-hand combat. The *Iawa* carries an ocean-shell and a conch with which he "invoked upon their heads the terrors of all their savage gods" (512). But after Harry kills the priest, the English find "three musket-balls in his body," proof that it was never a fair fight between them, and indeed, between the two races at large (517). Harry may hope he has put to death the last bit of superstition, but he remains haunted by the violence he has inflicted. He will not stay to construct the Palmetto City with stolen goods on land he has stained with blood. He carries an abiding sense of disquiet and pessimism about what the English will achieve in their burgeoning city. Harry's desire for a world beyond that of Anglo-American society emphasizes how Charleston's colonial history and its later cultural achievements are suffused with violence and enslavement.

---

[57]. "In Memoriam A. H. H.", line 1043, Alfred Lord Tennyson, *Alfred Lord Tennyson: Selected Poetry* (New York: Holt, Rinehart and Winston, Inc., 1956), 157.

Olive's death reiterates the moral ambivalence of Anglo-American providential history. As she lays dying, she hears the sounds of the battle, which almost "drown the song" of heaven (521). Amid the noise, she struggles to recite the Apostle's Creed: "'I believe in God, the Father Almighty, maker of heaven and earth, and in Jesus Christ, his'—ah! call him—call Harry—and sir Edward—my husband" (522). When Harry is ushered in, his name—rather than "his only Son," the Creed's next phrase—is her final word. The nun-like Olive is refusing Christ as her husband for the illicit love of Harry. Simms here shows that the Christian religion appears fragmented in this New World of vast and violent proportions. Because of the battle and the inability to communicate speedily with Charleston, at Olive's funeral "there were no sacred rites, no stoled priest to officiate the ceremonial" (524-5). At the end of the makeshift burial ceremony, Isawttee drags off Edward's daughter in a last-ditch effort to demoralize the English. Harry intervenes, and with a "single buffet . . . felled the wild assailant to the earth" (526). The blatant incongruity between the attempt at religious ceremony and the violence of the next moment is a signature of the European, and later, US fantasy of possession: a providential New World that transcends the conventional customs of European Christendom, conveyed here in a sacred burial. In this land of natural contingency, white settler colonists such as Harry and Edward are quick to defend their possession with the brutal, providentially sanctioned use of force.

In the end Harry seems to embrace ecological flux as a domain of peace, though he will carry with him the ability to conquer and possess nature and the subservient races to fulfill providential history. Harry might be Simms's proto-Southerner: part of the nation and yet imagining himself detached from it. Harry declares he has been "too long a freeman with Nature" to endure "European despotism" or "the Old World, with its rotten conventions,"

whether back in Britain or Charles-town (526). We might interpret his departure beyond the frame of British/American to that of North and South, the "despotism" of Northern caprice on the Southern way of life in the late 1850s. Indeed, by this time, Simms had done his fair share of defending the South and racial bondage. On his disastrous 1856 lecture tour of the North, he tried to defend what he called the South's manners and customs, and in the process, alienated much of his readership.[58] Harry will explore farther South with Zulieme, to the Spanish main; Edward can expect to find him eventually on some "noble mountains upon the broad Pacific" (527). Harry hopes to lose himself in the soothing melodies of his wife's guitar, in the "delicious moonlight of the South," in the child she will bear him, but the ambivalence Simms has developed in his protagonist makes it all but impossible to read the novel's closing lines without a sense of irony (529). Harry's vessel will "no longer disturb with violence"? It will be a "harbinger . . . of a more genial and loving Humanity" (530)? The narrator *wills* peace upon their course; peace is certainly not guaranteed for this proto-Southerner.

Harry's parting advice to Edward distills the synthesis of Providence and the Anglo-American possession of the natural world: "Make [Kiawah] a world to itself, and *your* world" (527). The motto applies just as well to Harry as the fair breezes lead him onward to new provinces of nature ripe for enclosure, however much he proceeds in a fantasy of peace and dispossession. For Humboldt, "make a world" might have referred to how the modern scientist creates a world of empirical interconnections: perhaps harmless enough, though Humboldt was certainly aware of the devastation wrought by colonialism. "Slavery," he wrote in his 1814 *Personal Narrative*, "so deeply revolts us in all those places where Europeans have brought what

[58]. Shillingsburg, "Simms's Failed Lecture Tour of 1856: The Mind of the North."

they call their 'enlightenment' and their 'commerce' to their colonies."[59] Yet for Harry, "make a world" means that Anglo-Americans should take the fluctuating provinces of nature and shape them into an empire. One can dismiss this logic as a distortion of Humboldtian ecology. But for Simms, the data from nature and history offered little moral insight on how Providence might alternatively work in and through the provinces of nature in the New World—except that the white races make a civilization there by brute force. This vision of a white race that rules ecological nature conflates natural complexities and the imperatives of the divine will. Earlier Christian commentators such as Thomas Aquinas had allowed for "randomness or contingency" in nature and a God entirely beyond accident, who had condescended in love to share the world of nature in the Incarnation and continued to do so in the sacraments.[60] By contrast, Harry feels compelled to *make* his world. Though his desires exceed Charleston, Simms makes clear that Harry stands ready to take action and ensure Providence through violence.

Conclusion

I have called Simms's use of the Humboldtian cosmos *possessive providential ecology* to describe a new scientifically informed iteration of natural theology that functioned to buttress imperialism and theories of racial difference. *Cassique* has scenes and moments of a natural world in flux, richly interconnected, and potentially arbitrary—more in line with the visions of Melville, Humboldt, and Bachman—but the novel eventually contains these ecological energies in a possessive scheme that legitimizes the US republic. *Cassique* is thus both a critique and an affirmation of antebellum Charleston and its history. Harry will not stay on the mainland, but he

---

[59]. Humboldt, *Alexander von Humboldt: Selected Writings*, 33.
[60]. See Mark A. Noll, "Come and See: A Christological Invitation for Science," in *All Things Hold Together in Christ: A Conversation on Faith, Science, and Virtue*, ed. James K. A. Smith and Gulker L. Michael (Grand Rapids: Baker Academic, 2018), 282.

embodies what it will take to build the Palmetto City: the willingness to inflict violence and force the land and subservient races to obey colonial masters, a legacy that continued into Simms's antebellum moment and beyond. Although Harry is "not a philosopher enough to anticipate the wondrous future," the sadness he feels for an even older Charles-town that the "red men" razed is a sentiment the narrator shares for different reasons: now all "trace of the locality" is gone, and cotton reigns (158). While Harry "trods among beds of cinders overgrown with weeds," antebellum Charlestonians fail to see their own ruins, as Simms's narrator observes (158). Yet Charleston was not entirely corrupt, in Simms's view. In his laudatory *Harper's* sketch, he detailed his city and its history without once mentioning its dependence on racial bondage.

Published the same year as *Cassique*, Darwin's *Origin* would seem to put to rest the problem of origins and distribution that Agassiz and Bachman had debated in the early 1850s. *Origin* provided a mechanism through which species, including the races, had migrated from a single center and proceeded on a self-sustaining basis without divine intervention. In the light of this scientific description, Bachman and Agassiz appear to have been stumbling in the dark, though occasionally, they happened upon the truth. Both naturalists had claimed that distribution depended on relationships between species and their environments. Agassiz believed such relationships were immutable, and Bachman left room for ecological contingency, but both naturalists were advancing a more relational view of nature, albeit with God still sustaining the processes. If Darwin seems to pull the curtain back to reveal a godless universe, Simms's novel reminds us that the Humboldtian, emergent ecological theory of distribution did not necessarily resolve the political and moral dilemmas then gripping America. Humboldt's Cosmos led some to reconfigure natural theology to justify imperialism and enslavement. *Cassique* manifests the entanglements of religion and the secular in emergent ecology, and for this reason, it deserves

more attention. The novel illustrates alternative, racialized ways that natural theology rose to the challenge of harmonizing with a deeply interconnected natural world.

Coda

The Black Abolitionist Natural Theology of James McCune Smith and Frederick Douglass

In his introduction to Frederick Douglass's *My Bondage and My Freedom* (1855), Black physician James McCune Smith compared Douglass's aesthetic to the part-whole dialectic of a scientific writer. Smith observes that, in *My Bondage*, "Memory, logic, wit, sarcasm, invective, pathos and bold imagery of rare structural beauty, well up as from a copious fountain, each in its proper place, and contributing to form a whole, grand in itself, yet complete in the minutest proportions."[1] Smith notes that the book "affords specimens of observing, comparing, and careful classifying," and he likens the "rare polish in [Douglass's] style of writing" to that of the English geologist Hugh Miller, both of which are "the result of careful early culture among the best classics of our language" (20, 22). But Douglass's subject is not the natural world per se. As Smith points out, Douglass is attuned to the "joys on the earth" but also "questions the earth": he looks to "'*God in the sky*' for the why and wherefore of the unnatural thing, slavery" (20). According to Smith, Douglass adopts a scientific-literary aesthetic to query the underlying racialized assumptions of US natural theology. And yet Douglass's project is finally one of theodicy, a complex vindication of "nature and nature's God" (172). Douglass seeks to re-envision natural theology through the lens of Humboldtian biogeography and Black abolitionism.

This coda briefly begins to address Humboldtian science's influence on Black writers by outlining how Smith and Douglass reworked natural theology and emergent ecological concepts. In Smith's and Douglass's writings, natural theology remains in play even as these Black writers interrogate the conventional tenets of benevolent design, Euro-American anthropocentricism,

---

[1]. Frederick Douglass, *My Bondage and My Freedom*, ed. John David Smith (New York: Penguin Books, 2003), 21. Hereafter cited parenthetically.

and biblical literalism. Their work reflects a Black abolitionist natural theology and follows a by-the-spirit biblical hermeneutic set against polygenetic literalist interpretations of the Hebrew Bible. Their writings simultaneously *de-center* the white nature observer and *re-assemble* Black selves in a web of social-ecological networks.

A Humboldtian thread runs through Smith's geographical science and Douglass's 1850s work resulting in *My Bondage*. Born into enslavement, Smith became the first African American to receive a medical degree, from the University of Glasgow, Scotland in 1837, and he published scientific articles in medical journals in the 1840s that solidified his expertise in medicine and geography.[2] Douglass refers to Smith's geographical studies in his 1854 address "The Claims of the Negro Ethnologically Considered," a refutation of racial science that integrates the new biological concept of the human as emerging from environmental contexts. Douglass notes Smith's theory that America's "industry and enterprise . . . is largely indebted to its composite character,"[3] a geographical explanation that Smith may have developed from Arnold Guyot, a Swiss-American geographer whose 1849 lectures *Earth and Man* used Humboldtian science to situate America as the center of civilization's progress due to its geographical advantages, though Guyot did so in a racialized manner in which Indigenous cultures would serve the intellectual cultures of Europe and North America.[4] Smith later published articles on geography and race in the *Anglo-African Magazine* in which he cites the English Quaker James Cowles Prichard's *Researches into the Physical History of Man* (1813), a work that Humboldt's

---

[2]. John Stauffer, "Introduction," in *The Works of James McCune Smith: Black Intellectual and Abolitionist* (New York: Oxford University Press, 2006), xiii–xv.
[3]. Frederick Douglass, *The Claims of the Negro, Ethnologically Considered: An Address before the Literary Societies of Western Reserve College, at Commencement, July 12, 1854.* (Rochester, NY: Lee, Mann & Co., 1854), 33.
[4]. On Guyot, see Walls, *The Passage to Cosmos,* 193–94.

biogeography had inspired and that Humboldt in turn praised in *Cosmos*.[5] In these 1859 articles Smith also references German scientist Carl Ritter, who with Humboldt helped form the modern discipline of geography, and Wilhelm von Humboldt, Alexander's brother, a renowned philologist and proponent of an original linguistic unity.[6]

Douglass likewise cites Prichard's *Physical History* in *My Bondage* (42), but, as Smith's introduction intimates, Douglass primarily employs scientific terms and perspectives to reflect on his memories of enslavement and imbue his narrative with evidence that enslaved persons can make wholes of their experience, even if their story seems less conventionally providential and more circumstantial and ecological. In effect, Douglass creates a narrative analogue to the new geography Smith proposes and later elaborates in the two *Anglo-African* articles. At the same time, Douglass part-whole aesthetic evokes the "one great whole" that Humboldt in *Cosmos* insists cannot be known *a priori* but is discovered empirically as a "unity in diversity of phenomena."[7] While we do not know whether Douglass read *Cosmos* firsthand, he did publish in his *North Star* an excerpt from *Cosmos'*s introduction in which Humboldt praises the French novelist and botanist Bernardin De St. Pierre for painting "the power of nature . . . in all its peculiarity of character."[8]

In *My Bondage*, the pain and the irrepressible joy that natural objects convey produce a narrative that is not smoothly teleological; Douglass's narrative is precariously *ecological*, comprised of contingent networks. The parts of nature, or what Douglass calls the "little tendrils

---

[5]. James McCune Smith, *The Works of James McCune Smith: Black Intellectual and Abolitionist*, ed. John Stauffer (New York: Oxford University Press, 2006), 253, 269, 278.On Prichard, see Walls, *The Passage to Cosmos*, 188.
[6]. Smith, *The Works of James McCune Smith*, 252, 280.
[7]. Humboldt, *Cosmos*, 1997, 1:24.
[8]. "Bernardin De St. Pierre," *The North Star*, no. 25 (June 16, 1848): 4.

of affection"—for example, the "darling objects of [his] grandmother's hut"—"gradually begin to extend" and "entwine about the new objects" that surround the formerly enslaved as his journey proceeds toward freedom (51). For Douglass, God is involved in creation mysteriously, even ecologically. In more explicit ways, though, this same God calls out prophetic political leaders to take action and infuse history with theological abolitionist truth, as *My Bondage* seeks to demonstrate. Here Douglass channels his new political collaborations with McCune Smith, Gerrit Smith, and John Brown and their Radical Abolitionist party that advocated for immediate abolition, using violence if necessary, and drew on 'pentecostal visitation,' or messages from God, to assist them in realizing a new age."[9]

Despite the massive scholarship on *My Bondage*, which includes perceptive work on Douglass's environmentalism and use of Free Soil ideas,[10] scholars have yet to unpack *My Bondage*'s distinctively ecological aesthetic or the link to Humboldt. Recently, Christine Ellis has contextualized Douglass against the American School of Ethnology in which Harvard zoologist Louis Agassiz was at the scientific helm, and Jared Hickman has applied postsecular theory to the American School and Douglass to illuminate *My Bondage*'s "*political-theological* abolitionism."[11] Building on this scholarship, I propose that *My Bondage* is a Black abolitionist natural theology text. Douglass inhabits a Humboldtian naturalist-explorer persona to debunk and revise racialized providential tropes of nature, often to orient these tropes toward the emergent ecological science. Identifying *My Bondage* as a natural theology text opens up new

---

[9]. Stauffer, "Introduction," xiv.
[10]. See Finseth, *Shades of Green*, 271–91; Cristin Ellis, "Amoral Abolitionism: Frederick Douglass and the Environmental Case against Slavery," *American Literature* 86, no. 2 (2014): 275–303.
[11]. Ellis, *Antebellum Posthuman*, 23–60; Jared Hickman, "Douglass Unbound," *Nineteenth-Century Literature* 68, no. 3 (2013): 328.

avenues for thinking about how nineteenth-century Black writers not only criticized but contributed to US natural science and theology.

Smith's and Douglass's writings reiterate the central claims of this dissertation. Their work underscores that Humboldtian science was not necessarily received as straightforwardly secular in mid-nineteenth-century America. Humboldt shifted the terms and emphases but did not entirely discredit the long-standing tradition of finding God in nature. And these Black writers reveal just how widespread the emergent ecological concept of nature had become by the midcentury. The *Cosmos* moment in American literature provides an archive of complexly theological reflections on nature's cosmic interconnections and the human relationship to nature.

Bibliography

Abrams, M. H. *Natural Supernaturalism: Tradition and Revolution in Romantic Literature*. New York: Norton, 1971.

Agassiz, Louis. “Contemplations of God in the Kosmos.” *Christian Examiner* 50 (January 1851): 1–17.

———. *Essay on Classification*. Cambridge, MA: Belknap Press of Harvard University Press, 1962.

———. “Geographical Distribution of Animals.” *Christian Examiner* 48 (1850): 181–204.

———. “Of the Natural Provinces of the Animal World and Their Relation to the Different Types of Man.” In *Types of Mankind*, edited by Josiah Clark Nott and George R. Gliddon, lviii–lxxviii. Philadelphia: Lippincott, Grambo & Co., 1854.

———. “The Diversity of Origin of the Human Races.” *Christian Examiner* 49 (July 1850): 110–45.

Agassiz, Louis, and Augustus A. Gould. *Principles of Zoology*. Boston, MA: Gould, Kendall and Lincoln, 1848.

Allewaert, Monique. *Ariel’s Ecology: Plantations, Personhood, and Colonialism in the American Tropics*. Minneapolis: University of Minnesota Press, 2013.

Anderson, Chad L. *The Storied Landscape of Iroquoia: History, Conquest, and Memory in the Native Northeast*. Lincoln: University of Nebraska Press, 2020.

Archibald, J. David. “Edward Hitchcock’s Pre-Darwinian (1840) ‘Tree of Life.’” *Journal of the History of Biology* 42, no. 3 (2009): 561–92.

Arsić, Branka. *Bird Relics: Grief and Vitalism in Thoreau*. Cambridge, MA: Harvard University Press, 2016.

Asad, Talal. *Formations of the Secular: Christianity, Islam, Modernity*. Stanford, CA: Stanford University Press, 2003.

Bachman, John. "A Notice of the 'Types of Mankind,' with an Examination of the Charges Contained in the Biography of Dr. Morton, Published by Nott and Gliddon." *Charleston Medical Journal and Review*, September 1854.

———. *The Doctrine of the Unity of the Human Race Examined on the Principles of Science*. Charleston, SC: C. Canning, 1850.

———. "The Morals of Entomology." In *The Charleston Book: A Miscellany in Prose and Verse*, edited by William Gilmore Simms, 30–40. Charleston, SC: Samuel Hart, Sen., 1845.

Barnes, Ashley C. *Love and Depth in the American Novel: From Stowe to James*. Charlottesville: University of Virginia Press, 2020.

Bauer, Ralph. "The Crucible of the Tropics: Alexander von Humboldt's Hermeneutics of Discovery." *The Eighteenth Century* 59, no. 2 (2018): 237–55.

Bauer, Ralph, and José Antonio Mazzotti, eds. "Introduction: Creole Subjects in the Colonial Americas." In *Creole Subjects in the Colonial Americas: Empires, Texts, Identities*, 1–57. Chapel Hill, NC: The University of North Carolina Press, 2009.

Baym, Nina. *American Women of Letters and the Nineteenth-Century Sciences: Styles of Affiliation*. New Brunswick, NJ: Rutgers University Press, 2002.

Beauchamp, William Martin. *Aboriginal Place Names of New York*. Albany, NY: New York State Education Department, 1907.

Bellin, Joshua David. “Red Walden: Thoreau and Native America.” In *Thoreau at Two-Hundred: Essays and Reassessments,* edited by Kevin P. Van Anglen and Kristen Case, 75–87. New York: Cambridge University Press, 2016.

Bennett, Jane. *The Enchantment of Modern Life: Attachments, Crossings, and Ethics*. Princeton, NJ: Princeton University Press, 2001.

Berger, Michael Benjamin. *Thoreau’s Late Career and The Dispersion of Seeds: The Saunterer’s Synoptic Vision*. Rochester, NY: Camden House, 2000.

“Bernardin De St. Pierre.” *The North Star*, no. 25 (June 16, 1848): 4.

Blythe, Anne M. “William Gilmore Simms’s *The Cassique of Kiawah* and the Principles of His Art.” In *“Long Years of Neglect”: The Work and Reputation of William Gilmore Simms*, edited by John Caldwell Guilds, 37–59. Fayetteville: University of Arkansas Press, 1988.

Boudreau, Gordon V. *The Roots of Walden and the Tree of Life*. Nashville: Vanderbilt University Press, 1990.

Bowen, Margarita. *Empiricism and Geographical Thought: From Francis Bacon to Alexander von Humboldt*. New York: Cambridge University Press, 1981.

Bowers, J. D. *Joseph Priestley and English Unitarianism in America*. University Park, PA: Pennsylvania State University Press, 2007.

Bozeman, Theodore Dwight. *Protestants in an Age of Science: The Baconian Ideal and Ante-Bellum American Religious Thought*. Chapel Hill: University of North Carolina Press, 1977.

Branch, Lori. “Postsecular Studies.” In *The Routledge Companion to Literature and Religion*, edited by Mark Knight, 91–101. New York: Routledge, 2016.

Branch, Lori, and Mark Knight. “Why the Postsecular Matters: Literary Studies and the Rise of the Novel.” *Christianity & Literature* 67, no. 3 (2018): 493–510.

Bryson, Michael A. *Visions of the Land: Science, Literature, and the American Environment from the Era of Exploration to the Age of Ecology*. Charlottesville: University of Virginia Press, 2002.

Buell, Lawrence. *Literary Transcendentalism: Style and Vision in the American Renaissance*. Ithaca, NY: Cornell University Press, 1973.

———. *The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture*. Cambridge, MA: Belknap Press of Harvard University Press, 1995.

Busick, Sean R. *A Sober Desire for History: William Gilmore Simms as Historian*. Columbia, SC: University of South Carolina Press, 2005.

Cameron, Kenneth Walter. *Thoreau’s Harvard Years: Materials Introductory to New Explorations, Record of Fact and Background*. Hartford, CT: Transcendental Books, 1966.

Cannon, Susan Faye. *Science in Culture: The Early Victorian Period*. New York: Dawson and Science History Publications, 1978.

Casanova, José. “The Secular, Secularizations, Secularisms.” In *Rethinking Secularism*, edited by Craig J. Calhoun, Mark Juergensmeyer, and Jonathan VanAntwerpen, 54–74. New York: Oxford University Press, 2011.

Channing, William Ellery. “The Evidences of Revealed Religion.” In *William Ellery Channing: Selected Writings*, edited by David Robinson, 122–44. New York: Paulist Press, 1985.

Coleman, Dawn. *Preaching and the Rise of the American Novel*. Columbus: Ohio State University Press, 2013.

Collins, Kevin. “Experiments in Realism: Doubling in Simms’s ‘The Cassique of Kiawah.’” *The Southern Literary Journal* 34, no. 2 (2002): 1–13.

———. “The Cassique of Kiawah: A Colonial Romance.” In *Reading William Gilmore Simms: Essays of Introduction to the Author’s Canon*, edited by Todd Hagstette, 50–59. Columbia, SC: University of South Carolina Press, 2017.

Conser, Walter H. *God and the Natural World: Religion and Science in Antebellum America*. Columbia, SC: University of South Carolina Press, 1993.

Cooper, James Fenimore. *Letters and Journals*. Edited by James Franklin Beard. Cambridge, MA: Belknap Press of Harvard University Press, 1960.

Cooper, Susan Fenimore. “Introduction to *The Rhyme and Reason of Country Life: Or, Selections from Fields Old and New*.” In *Essays on Nature and Landscape*, edited by Rochelle Johnson and Daniel Patterson, 24–44. Athens: University of Georgia Press, 2002.

———. *Rural Hours*. Edited by Rochelle Johnson and Daniel Patterson. Athens: University of Georgia Press, 1998.

Coviello, Peter. *Make Yourselves Gods: Mormons and the Unfinished Business of American Secularism*. Chicago: University of Chicago Press, 2019.

Dana, James Dwight. *Creation; or, the Biblical Cosmogony in the Light of Modern Science*. Oberlin, OH: E. J. Goodrich, 1885.

———. “Notes on Upper California.” *American Journal of Science and Arts* 7, no. 20 (March 1849): 247.

———. *Science and the Bible; a Review of “The Six Days of Creation” of Prof. Tayler Lewis.* Andover, MA: Warren F. Draper, 1856.

———. *United States Exploring Expedition: Geology*. Vol. 10. Philadelphia: C. Sherman, 1849.

Daniels, George H. *American Science in the Age of Jackson*. New York: Columbia University Press, 1968.

Darwin, Charles. "Letter No. 1171 [to Edward Cresy]," May 1848. Darwin Correspondence Project. https://www.darwinproject.ac.uk/letter/DCP-LETT-1999.xml.

———. "Letter No. 1999," November 24, 1856. Darwin Correspondence Project. https://www.darwinproject.ac.uk/letter/DCP-LETT-1999.xml.

———. "Letter No. 2532 [to John Lubbock]," November 22, 1859. Darwin Correspondence Project. https://www.darwinproject.ac.uk/letter/DCP-LETT-2532.xml.

———. "Letter No. 3796," November 6, 1862. Darwin Correspondence Project. www.darwinproject.ac.uk/letter/DCP-LETT-1999.xml.

———. "Letter to Edward Hitchcock," November 6, 1845. Box 3, Folder 8, Edward and Orra White Hitchcock Papers. Archives and Special Collections, Amherst College Library. https://acdc.amherst.edu/view/asc:73442.

———. *On the Origin of Species*. Edited by Jim Endersby. New York: Cambridge University Press, 2009.

Davey, Michael. "Reading Susan Reading Ruth: Audience, Response, and the Historical Hermeneutics of *Rural Hours*." In *Susan Fenimore Cooper: New Essays on Rural Hours and Other Works*, edited by Rochelle Johnson and Daniel Patterson, 129–53. Athens: University of Georgia Press, 2001.

Dean, Bradley P. "Introduction." In *Wild Fruits: Thoreau's Rediscovered Last Manuscript*, by Henry David Thoreau, ix–xvii, 1st ed. New York: W. W. Norton, 2000.

Dekker, George. *The American Historical Romance*. New York: Cambridge University Press, 1987.

Dettelbach, Michael. "Humboldtian Science." In *Cultures of Natural History*, edited by Nicholas Jardine, James A. Secord, and E. C Spary, 287–304. New York: Cambridge University Press, 1996.

Donahue, Brian. *The Great Meadow: Farmers and the Land in Colonial Concord*. New Haven: Yale University Press, 2004.

Douglass, Frederick. *My Bondage and My Freedom*. Edited by John David Smith. New York: Penguin Books, 2003.

———. *The Claims of the Negro, Ethnologically Considered: An Address before the Literary Societies of Western Reserve College, at Commencement, July 12, 1854.* Rochester, NY: Lee, Mann & Co., 1854.

Duban, James. "Conscience and Consciousness: The Liberal Christian Context of Thoreau's Political Ethics." *The New England Quarterly* 60 (1987): 208.

Dupree, A. Hunter. *Asa Gray, 1810-1888*. Cambridge, MA: Belknap Press of Harvard University Press, 1959.

Eliade, Mircea. *The Sacred and the Profane*. Translated by Willard R. Trask. New York: Harcourt, Inc., 1987.

Ellis, Cristin. "Amoral Abolitionism: Frederick Douglass and the Environmental Case against Slavery." *American Literature* 86, no. 2 (2014): 275–303.

———. *Antebellum Posthuman: Race and Materiality in the Mid-Nineteenth Century*. New York: Fordham University Press, 2018.

Emerson, Ralph Waldo. *Ralph Waldo Emerson*. Edited by Richard Poirier. New York: Oxford University Press, 1990.

———. *The Complete Works of Ralph Waldo Emerson*. Boston, MA: Houghton, Mifflin and Company, 1903.

Faust, Drew Gilpin. *A Sacred Circle: The Dilemma of the Intellectual in the Old South, 1840-1860*. Baltimore: Johns Hopkins University Press, 1977.

Fessenden, Tracy. *Culture and Redemption: Religion, the Secular, and American Literature*. Princeton, NJ: Princeton University Press, 2007.

Fink, Steven. *Prophet in the Marketplace: Thoreau's Development as a Professional Writer*. Princeton, NJ: Princeton University Press, 1992.

Finseth, Ian Frederick. *Shades of Green: Visions of Nature in the Literature of American Slavery, 1770-1860*. Athens: University of Georgia Press, 2009.

Foner, Eric. *Free Soil, Free Labor, Free Men: The Ideology of the Republican Party before the Civil War*. New York: Oxford University Press, 1995.

Foner, Philip S. "Alexander Von Humboldt on Slavery in America." *Science & Society* 47, no. 3 (1983): 330–42.

Foucault, Michel. *The Order of Things: An Archaeology of the Human Sciences*. New York: Pantheon Books, 1970.

Franklin, Wayne. *James Fenimore Cooper: The Later Years*. New Haven: Yale University Press, 2017.

Fuller, Randall. *The Book That Changed America: How Darwin's Theory of Evolution Ignited a Nation*. New York: Viking, 2017.

Gatta, John. *Making Nature Sacred: Literature, Religion, and Environment in America from the Puritans to the Present*. New York: Oxford University Press, 2004.

Germic, Stephen. "Land Claims, Natives, and Nativism: Susan Fenimore Cooper's Fealty to Place." *American Literature* 79, no. 3 (September 2007): 475–500.

Gianquitto, Tina. *"Good Observers of Nature": American Women and the Scientific Study of the Natural World, 1820-1885*. Athens: University of Georgia Press, 2007.

———. "The Noble Designs of Nature: God, Science, and the Picturesque in Susan Fenimore Cooper's *Rural Hours*." In *Susan Fenimore Cooper: New Essays on Rural Hours and Other Works*, edited by Rochelle Johnson and Daniel Patterson, 169–90. Athens: University of Georgia Press, 2001.

Gillespie, Neal C. *Charles Darwin and the Problem of Creation*. Chicago: University of Chicago Press, 1979.

Gilman, Daniel C. *The Life of James Dwight Dana, Scientific Explorer, Mineralogist, Geologist, Zoologist, Professor in Yale University*. New York: Harper & Brothers, 1899.

Gilman, Daniel Coit. "Humboldt, Ritter, and the New Geography." *New Englander* 18, no. 70 (May 1860): 277–306.

Gray, Asa. *Darwiniana: Essays and Reviews Pertaining to Darwinism*. New York: D. Appleton and Company, 1876.

———. "Rev. of *Explanations: A Sequel to the Vestiges of the Natural History of Creation*." *The North American Review* 62 (April 1846): 465–506.

———. "Statistics of the Flora of the Northern United States." *American Journal of Science and Arts* 23, no. 69 (May 1857): 369–403.

Greene, John C. “Protestantism, Science, and American Enterprise: Benjamin Silliman’s Moral Universe.” In *Benjamin Silliman and His Circle: Studies on the Influence of Benjamin Silliman on Science in America : Prepared in Honor of Elizabeth H. Thomson*, edited by Leonard G Wilson, 11–27. New York: Science History Publications, 1979.

Greeson, Jennifer Rae. *Our South: Geographic Fantasy and the Rise of National Literature*. Cambridge, MA: Harvard University Press, 2010.

Gregory, Brad S. *The Unintended Reformation: How a Religious Revolution Secularized Society*. Cambridge, MA: Belknap Press of Harvard University Press, 2012.

Gross, Robert A. “Faith in the Boardinghouse: New Views of Thoreau Family Religion.” *The Thoreau Society Bulletin*, no. 250 (2005): 1–5.

Grove, Richard. *Green Imperialism: Colonial Expansion, Tropical Island Edens, and the Origins of Environmentalism, 1600-1860*. New York: Cambridge University Press, 1995.

Guilds, John Caldwell. “Introduction.” In *The Cassique of Kiawah: A Colonial Romance*, by William Gilmore Simms, xix–xxv. edited by Kevin Collins. Fayetteville: University of Arkansas Press, 2003.

———. *Simms: A Literary Life*. Fayetteville: University of Arkansas Press, 1992.

Gutjahr, Paul C. *Charles Hodge: Guardian of American Orthodoxy*. New York: Oxford University Press, 2011.

Hardack, Richard. *“Not Altogether Human”: Pantheism and the Dark Nature of the American Renaissance*. Amherst: University of Massachusetts Press, 2012.

Harding, Walter. *The Days of Henry Thoreau*. New York, NY: Alfred A. Knopf, 1966.

Harris, Thaddeus William. “Man and Nature.” *Christian Examiner* 53 (July 1852): 114–34.

Harrison, Peter. *The Territories of Science and Religion*. Chicago: The University of Chicago Press, 2015.

Hart, David Bentley. "Where the Consonance Really Lies." In *Theological Territories: A David Bentley Hart Digest*, 123–37. Notre Dame, IN: University of Notre Dame Press, 2020.

Hatch, Nathan O. *The Democratization of American Christianity*. New Haven: Yale University Press, 1989.

Hauerwas, Stanley. *With the Grain of the Universe: The Church's Witness and Natural Theology*. Grand Rapids, MI: Baker Academic, 2013.

Hickman, Jared. *Black Prometheus: Race and Radicalism in the Age of Atlantic Slavery*. New York: Oxford University Press, 2017.

———. "Douglass Unbound." *Nineteenth-Century Literature* 68, no. 3 (2013): 323–62.

Hitchcock, Edward. *The Religion of Geology and Its Connected Sciences*. [Rpt. of the 1852 ed.]. Hicksville, NY: Regina Press, 1975.

Hodder, Alan D. "The Religious Horizon." In *Henry David Thoreau in Context,* edited by James S. Finley, 78–88. Literature in Context. New York: Cambridge University Press, 2017.

Hodge, Charles. "Journal of European Travels (Halle, Germany). February 1827 - April 1828," n.d. Charles Hodge Manuscript Collection. Princeton Theological Seminary. http://commons.ptsem.edu/id/notesonlecturesp00hodg_11.

———. *Systematic Theology*. New York: Scribner, Armstrong, and Co., 1873.

———. *What Is Darwinism? And Other Writings on Science and Religion*. Edited by Mark A. Noll and David N. Livingstone. Grand Rapids, MI: Baker Books, 1994.

Holifield, E. Brooks. *Theology in America: Christian Thought from the Age of the Puritans to the Civil War*. New Haven: Yale University Press, 2003.

Holloway, J. Starr. “William Gilmore Simms.” *Lady’s Home Magazine*, December 1859.

Hovenkamp, Herbert. *Science and Religion in America, 1800-1860*. Philadelphia: University of Pennsylvania Press, 1978.

Howe, Daniel Walker. *The Unitarian Conscience: Harvard Moral Philosophy, 1805-1861*. Cambridge, MA: Harvard University Press, 1970.

Hubbard, F.M. “The Cassique of Kiawah.” *The North American Review*, October 1859.

Humboldt, Alexander von. *Alexander von Humboldt: Selected Writings*. Edited by Andrea Wulf. New York, NY: Everyman’s Library, 2018.

———. *Cosmos: A Sketch of a Physical Description of the Universe*. Translated by E. C. Otté. New York: Harper, 1859.

———. *Cosmos: A Sketch of a Physical Description of the Universe*. Translated by E. C. Otté. Vol. 1. Baltimore: Johns Hopkins University Press, 1997.

Humboldt, Alexander von, and Aimé Bonpland. *Essay on the Geography of Plants*. Edited by Stephen T. Jackson. Translated by Sylvie Romanowski. Chicago: University of Chicago Press, 2009.

Irmscher, Christoph. *Louis Agassiz: Creator of American Science*. Boston: Houghton Mifflin Harcourt, 2013.

Ivers, Larry E. *This Torrent of Indians: War on the Southern Frontier, 1715-1728*. Columbia, SC: University of South Carolina Press, 2016.

Jackson, Stephen T. “Introduction: Humboldt, Ecology, and the Cosmos.” In *Essay on the Geography of Plants*, by Alexander von Humboldt and Aimé Bonpland, 1–46. translated by Sylvie Romanowski. Chicago: University of Chicago Press, 2009.

Jager, Colin. *The Book of God: Secularization and Design in the Romantic Era*. Philadelphia: University of Pennsylvania Press, 2007.

———. "This Detail, This History: Charles Taylor's Romanticism." In *Varieties of Secularism in a Secular Age*, edited by Michael Warner, Jonathan VanAntwerpen, and Craig J. Calhoun, 166–92. Cambridge, MA: Harvard University Press, 2010.

———. *Unquiet Things: Secularism in the Romantic Age*. Philadelphia: University of Pennsylvania Press, 2015.

Jennings, Willie James. "Binding Landscapes: Secularism, Race, and the Spatial Modern." In *Race and Secularism in America*, edited by Jonathon Samuel Kahn and Vincent W. Lloyd, 207–38. New York: Columbia University Press, 2016.

———. *The Christian Imagination: Theology and the Origins of Race*. New Haven: Yale University Press, 2010.

Johnson, Rochelle. *Passions for Nature: Nineteenth-Century America's Aesthetics of Alienation*. Athens: University of Georgia Press, 2009.

Johnson, Rochelle, and Daniel Patterson, eds. *Susan Fenimore Cooper: New Essays on Rural Hours and Other Works*. Athens: University of Georgia Press, 2001.

Jonik, Michael. *Herman Melville and the Politics of the Inhuman*. New York: Cambridge University Press, 2018.

Joyce, A. J. *Richard Hooker and Anglican Moral Theology*. New York: Oxford University Press, 2012.

Kibler, James E. "Simms as Naturalist: Lowcountry Landscape in His Revolutionary Novels." *Mississippi Quarterly*, 1978, 499–518.

Kucich, John J. “Native America.” In *Henry David Thoreau in Context*, edited by James S. Finley, 196–204. New York: Cambridge University Press, 2017.

Lemire, Elise Virginia. *Black Walden: Slavery and Its Aftermath in Concord, Massachusetts*. Philadelphia: University of Pennsylvania Press, 2009.

Lindberg, David C., and Ronald L. Numbers, eds. *God and Nature: Historical Essays on the Encounter between Christianity and Science*. Berkeley: University of California Press, 1986.

Lindsley, James Elliott. *This Planted Vine: A Narrative History of the Episcopal Diocese of New York*. New York: Harper & Row, 1984.

Livingstone, David N., D.G. Hart, and Mark A. Noll, eds. *Evangelicals and Science in Historical Perspective*. New York: Oxford University Press, 1999.

Lovering, Joseph. “Baron Humboldt’s Cosmos.” *Christian Examiner* 48, no. 1 (1850): 53–88.

Luciano, Dana. “Romancing the Trace: Edward Hitchcock’s Speculative Ichnology.” In *Anthropocene Reading: Literary History in Geologic Times*, edited by Tobias Menely and Jesse O. Taylor, 96–116. University Park: The Pennsylvania State University Press, 2017.

———. “Sacred Theories of Earth: Matters of Spirit in *The Soul of Things*.” *American Literature* 86, no. 4 (2014): 713–36.

Lukács, George. *The Historical Novel*. London: Merlin Press, 1962.

Lurie, Edward. *Louis Agassiz: A Life in Science*. Chicago: University of Chicago Press, 1960.

Lyell, Charles. *Principles of Geology*. Edited by M. J. S. Rudwick. 1st ed. [1830-1833]. Vol. 1. Chicago: University of Chicago Press, 1990.

MacIntyre, Alasdair C. *Three Rival Versions of Moral Enquiry: Encyclopedia, Genealogy, and Tradition*. Notre Dame: University of Notre Dame Press, 1990.

Malachuk, Daniel S. *Two Cities: The Political Thought of American Transcendentalism*. Lawrence, KS: University Press of Kansas, 2016.

Marsden, George M. *Fundamentalism and American Culture*. 2nd ed. New York: Oxford University Press, 2006.

Marsh, George Perkins. "The Study of Nature." *Christian Examiner* 58 (January 1860): 33–62.

McClure, John A. *Partial Faiths: Postsecular Fiction in the Age of Pynchon and Morrison*. Athens: University of Georgia Press, 2007.

McGarry, Molly. *Ghosts of Futures Past Spiritualism and the Cultural Politics of Nineteenth-Century America*. Berkeley: University of California Press, 2008.

Melville, Herman. *The Piazza Tales and Other Prose Pieces: 1839-1860*. Edited by Harrison Hayford, Hershel Parker, and G. Thomas Tanselle. *The Writings of Herman Melville: Volume 9*. Evanston, IL: Northwestern University Press, 1987.

Menand, Louis. *The Metaphysical Club*. New York: Farrar, Straus and Giroux, 2001.

Milbank, John. *Theology and Social Theory: Beyond Secular Reason*. Cambridge, MA: Blackwell, 1991.

Miller, Hugh. *The Testimony of the Rocks; or, Geology in Its Bearings on the Two Theologies, Natural and Revealed*. [1857]. New York: John Balden, 1892.

Modern, John Lardas. *Secularism in Antebellum America*. Chicago: University of Chicago Press, 2011.

Moltke-Hansen, David. "Ordered Progress: The Historical Philosophy of William Gilmore Simms." In *"Long Years of Neglect": The Work and Reputation of William Gilmore*

Simms, edited by John Caldwell Guilds, 126–47. Fayetteville: University of Arkansas Press, 1988.

Mott, Wesley T. "Boston and Worcester." In *Henry David Thoreau in Context*, edited by James S. Finley, 23–32. Literature in Context. New York: Cambridge University Press, 2017.

Mullin, Robert Bruce. *Episcopal Vision/American Reality: High Church Theology and Social Thought in Evangelical America*. New Haven: Yale University Press, 1986.

Myers, Jeffrey. *Converging Stories: Race, Ecology, and Environmental Justice in American Literature*. Athens: University of Georgia Press, 2005.

Newman, Lance. *Our Common Dwelling: Henry Thoreau, Transcendentalism, and the Class Politics of Nature*. New York, NY: Palgrave Macmillan, 2005.

Nicolson, Malcolm. "Humboldtian Plant Geography after Humboldt: The Link to Ecology." *The British Journal for the History of Science* 29, no. 3 (1996): 289–310.

Noll, Mark A. *America's God: From Jonathan Edwards to Abraham Lincoln*. New York: Oxford University Press, 2002.

———. "Come and See: A Christological Invitation for Science." In *All Things Hold Together in Christ: A Conversation on Faith, Science, and Virtue*, edited by James K. A. Smith and Gulker L. Michael, 277–94. Grand Rapids: Baker Academic, 2018.

———. "Science, Theology, and Society: From Cotton Mather to William Jennings Bryan." In *Evangelicals and Science in Historical Perspective*, edited by David N. Livingstone, D.G. Hart, and Mark A. Noll, 99–119. New York: Oxford University Press, 1999.

Norwood, Vera. *Made from This Earth: American Women and Nature*. Chapel Hill: University of North Carolina Press, 1993.

Nott, Josiah Clark, and George R. Gliddon, eds. *Types of Mankind*. Philadelphia: Lippincott, Grambo & Co., 1854.

Numbers, Ronald L. *Creation by Natural Law: Laplace's Nebular Hypothesis in American Thought*. Seattle: University of Washington Press, 1977.

———. *Darwinism Comes to America*. Cambridge, MA: Harvard University Press, 1998.

———. *The Creationists: From Scientific Creationism to Intelligent Design*. Cambridge, MA: Harvard University Press, 2006.

O'Brien, Jean M. *Firsting and Lasting: Writing Indians out of Existence in New England*. Minneapolis: University of Minnesota Press, 2010.

O'Brien, Michael, and David Moltke-Hansen, eds. *Intellectual Life in Antebellum Charleston*. Knoxville: University of Tennessee Press, 1986.

Ogden, Emily. *Credulity: A Cultural History of US Mesmerism*. Chicago: The University of Chicago Press, 2018.

Packer, Barbara. "Signing Off: Religious Indifference in America." In *There before Us: Religion, Literature, and Culture from Emerson to Wendell Berry*, edited by Roger Lundin, 1–22. Grand Rapids, MI: William B. Eerdmans, 2007.

———. *The Transcendentalists*. Athens: U of Georgia P, 2007.

Paley, William. *Natural Theology*. Boston: Lincoln and Edmands, 1831.

Parrish, Susan Scott. *American Curiosity: Cultures of Natural History in the Colonial British Atlantic World*. Chapel Hill, NC: University of North Carolina Press, 2006.

Peck, H. Daniel. *Thoreau's Morning Work: Memory and Perception in A Week on the Concord and Merrimack Rivers, The Journal, and Walden*. New Haven: Yale University Press, 1990.

Petrulionis, Sandra Harbert. *To Set This World Right: The Antislavery Movement in Thoreau's Concord*. Ithaca, NY: Cornell University Press, 2006.

Pratt, Lloyd. *Archives of American Time: Literature and Modernity in the Nineteenth Century*. Philadelphia: University of Pennsylvania Press, 2010.

Pratt, Mary Louise. *Imperial Eyes: Travel Writing and Transculturation*. New York, NY: Routledge, 1992.

Prickett, Stephen. *Origins of Narrative: The Romantic Appropriation of the Bible*. Cambridge: Cambridge University Press, 1996.

Priestley, Joseph. *Disquisitions Relating to Matter and Spirit: And the Doctrine of Philosophical Necessity Illustrated*. New York, NY: Garland, 1976.

Reed, Ashley. *Heaven's Interpreters: Women Writers and Religious Agency in Nineteenth-Century America*. Ithaca, NY: Cornell University Press, 2020.

Reingold, Nathan. "Paradigm Lost." In *The Sciences in the American Context: New Perspectives*, edited by Nathan Reingold, 21–34. Washington, D.C.: Smithsonian Institute Press, 1979.

"Rev. of *The Cassique of Kiawah, a Colonial Romance*." *Godey's Lady Book and Magazine*, August 1859.

"[Review of *Rural Hours*, by Susan Fenimore Cooper]." *The North American Review* 72, no. 150 (January 1851): 151–77.

Richards, Robert J. *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe*. Chicago: University of Chicago Press, 2002.

Richardson, Robert D. *Henry Thoreau: A Life of the Mind*. Berkeley, CA: University of California Press, 1986.

Rigby, Catherine E. *Topographies of the Sacred: The Poetics of Place in European Romanticism*. Charlottesville: University of Virginia Press, 2004.

Robinson, David. *Natural Life: Thoreau's Worldly Transcendentalism*. Ithaca, NY: Cornell University Press, 2004.

Robinson, Gloria. "Edward Hitchcock." In *Benjamin Silliman and His Circle: Studies on the Influence of Benjamin Silliman on Science in America : Prepared in Honor of Elizabeth H. Thomson*, edited by Leonard G Wilson, 49–83. New York: Science History Publications, 1979.

Ronda, Bruce A. *The Fate of Transcendentalism: Secularity, Materiality, and Human Flourishing*. Athens: The University of Georgia Press, 2017.

Rubin, Louis D., Jr. "Simms, Charleston, and the Profession of Letters." In *"Long Years of Neglect": The Work and Reputation of William Gilmore Simms*, edited by John Caldwell Guilds, 217–34. Fayetteville: University of Arkansas Press, 1988.

Rupke, Nicolaas A. "Introduction to the 1997 Edition." In *Cosmos: A Sketch of a Physical Description of the Universe*, by Alexander von Humboldt, vii–xlii. translated by E. C. Otté. Baltimore: Johns Hopkins Press, 1997.

Sachs, Aaron. *The Humboldt Current: Nineteenth-Century Exploration and the Roots of American Environmentalism*. New York: Viking, 2006.

Sattelmeyer, Robert. *Thoreau's Reading: A Study in Intellectual History*. Princeton, NJ: Princeton University Press, 1988.

Secord, James A. *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation*. Chicago: University of Chicago Press, 2000.

———. *Visions of Science: Books and Readers at the Dawn of the Victorian Age*. Chicago: University of Chicago Press, 2014.

Sellers, Charles. *The Market Revolution: Jacksonian America, 1815-1846*. New York: Oxford University Press, 1991.

Severens, Kenneth. *Charleston Antebellum Architecture and Civic Destiny*. Knoxville: University of Tennessee Press, 1988.

Shillingsburg, Miriam J. "Simms's Failed Lecture Tour of 1856: The Mind of the North." In *"Long Years of Neglect": The Work and Reputation of William Gilmore Simms*, edited by John Caldwell Guilds, 183–201. Fayetteville: University of Arkansas Press, 1988.

Shteir, Ann B. "Elegant Recreations? Configuring Science Writing for Women." In *Victorian Science in Context*, edited by Bernard V. Lightman, 236–55. Chicago: University of Chicago Press, 1997.

Simms, William Gilmore. "Charleston, The Palmetto City." *Harper's New Monthly Magazine* 15, no. 85 (June 1857): 1–22.

———. *Letters of William Gilmore Simms*. Edited by Mary C. Simms Oliphant, Alfred Taylor Odell, and T. C. Duncan Eaves. Vol. 3 (1850-1857). Columbia: University of South Carolina Press, 1952.

———. *Letters of William Gilmore Simms*. Edited by Mary C. Simms Oliphant, Alfred Taylor Odell, and T. C. Duncan Eaves. Vol. 1 (1830-1844). Columbia: University of South Carolina Press, 1952.

———. "Poetry and the Practical [1854]." In *The Simms Reader: Selections from the Writings of William Gilmore Simms*, edited by John Caldwell Guilds, 327–37. Charlottesville: University Press of Virginia, 2001.

———. “Rev. of *Moby-Dick*, by Herman Melville.” *Southern Quarterly Review* 21 (January 1852): 262.

———. *The Cassique of Kiawah: A Colonial Romance*. Edited by Kevin Collins. Fayetteville: University of Arkansas Press, 2003.

Smellie, William. *The Philosophy of Natural History; with an Introduction and Various Additions and Alterations, Intended to Adapt It to the Present State of Knowledge*. Edited by John Ware. 5th ed. Boston, MA: Hillard, Gray, and Co., 1834.

Smith, James McCune. *The Works of James McCune Smith: Black Intellectual and Abolitionist*. Edited by John Stauffer. New York: Oxford University Press, 2006.

Stanton, William Ragan. *The Leopard’s Spots: Scientific Attitudes toward Race in America, 1815-59.* Chicago: University of Chicago Press, 1960.

Stauffer, John. “Introduction.” In *The Works of James McCune Smith: Black Intellectual and Abolitionist*, xiii–xl. New York: Oxford University Press, 2006.

Stephens, Lester D. *Science, Race, and Religion in the American South: John Bachman and the Charleston Circle of Naturalists, 1815-1895*. Chapel Hill: University of North Carolina Press, 2000.

———. “The Literary and Philosophical Society of South Carolina: A Forum for Intellectual Progress in Antebellum Charleston.” *The South Carolina Historical Magazine* 104, no. 3 (July 2003): 154–75.

Stoll, Mark. *Inherit the Holy Mountain: Religion and the Rise of American Environmentalism*. New York: Oxford University Press, 2015.

Sundquist, Eric J. “The Literature of Slavery and African American Culture.” In *The Cambridge History of American Literature: Volume 2: Prose Writing 1820-1865*, edited by Sacvan Bercovitch, 239–328. New York: Cambridge University Press, 2003.

Sweet, Timothy. *American Georgics: Economy and Environment in Early American Literature*. Philadelphia: University of Pennsylvania Press, 2002.

———. “Global Cooperstown: Taxonomy, Biogeography, and Sense of Place in Susan Fenimore Cooper’s *Rural Hours*.” *ISLE: Interdisciplinary Studies in Literature and Environment* 17, no. 3 (Summer 2010): 541–66.

Tanyol, Denise. “The Alternative Taxonomies of Melville’s ‘The Encantadas.’” *The New England Quarterly* 80, no. 2 (2007): 242–79.

Tate, Adam L. “Religion and the Good Society: Simms’s Classical View.” *The Simms Review* 2, no. 9 (Winter 2001): 8–15.

Taylor, Alan. *William Cooper’s Town: Power and Persuasion on the Frontier of the Early American Republic*. New York: Alfred A. Knopf, 1995.

Taylor, Charles. *A Secular Age*. Cambridge, MA: Belknap Press of Harvard University Press, 2007.

Tennyson, Alfred Lord. *Alfred Lord Tennyson: Selected Poetry*. New York: Holt, Rinehart and Winston, Inc., 1956.

Thayer, Joseph Henry. *Thayer’s Greek-English Lexicon of the New Testament*. Peabody, MA: Hendrickson, 1996.

Thoreau, Henry David. *A Week on the Concord and Merrimack Rivers*. The Writings of Henry D. Thoreau. Princeton, NJ: Princeton University Press, 1980.

———. “An Address on the Succession of Forest Trees [1860].” In *Excursions*, edited by Joseph J. Moldenhauer, 165–83. The Writings of Henry D. Thoreau. Princeton, NJ: Princeton University Press, 2007.

———. *Correspondence*. Edited by Walter Harding and Carl Bode. New York, NY: University Press, 1958.

———. *Faith in a Seed: The Dispersion of Seeds and Other Late Natural History Writings*. Edited by Bradley P. Dean. Washington, D.C.: Island Press/Shearwater Books, 1993.

———. *Journal*. Edited by John C. Broderick. The Writings of Henry D. Thoreau. Princeton, NJ: Princeton University Press, 1981.

———. *Reform Papers*. Edited by Wendell Glick. The Writings of Henry D. Thoreau. Princeton, NJ: Princeton University Press, 1973.

———. *The Maine Woods*. The Writings of Henry D. Thoreau. Princeton, NJ: Princeton University Press, 1972.

———. *Walden*. Edited by J. Lyndon Shanley. The Writings of Henry D. Thoreau. Princeton, NJ: Princeton University Press, 2004.

Thorson, Robert M. *Walden’s Shore: Henry David Thoreau and Nineteenth-Century Science*. Cambridge, MA: Harvard University Press, 2014.

Tolley, Kim. “Learning from Nature: Alexander von Humboldt’s Influence on Young Women’s Geography and Natural History Education in Nineteenth-Century America.” *Paedagogica Historica* 56, no. 1–2 (March 2020): 101–20.

Topham, Jonathan R. “Natural Theology and the Sciences.” In *The Cambridge Companion to Science and Religion*, edited by Peter Harrison, 59–79. New York: Cambridge University Press, 2010.

———. “Science, Natural Theology, and the Practice of Christian Piety in Early-Nineteenth-Century Religious Magazines.” In *Science Serialized: Representation of the Sciences in Nineteenth-Century Periodicals*, edited by G. N. Cantor and Sally Shuttleworth, 37–66. Cambridge, MA: MIT Press, 2004.

Tyler, Samuel. *A Discourse of the Baconian Philosophy*. Frederick City, MD: D. Schley & T. Haller, 1846.

[Tyler, Samuel]. “Cosmos: A Sketch of a Physical Description of the Universe. By Alexander von Humboldt. Henry G. Bohn, London.” *The Biblical Repertory and Princeton Review* 24, no. 3 (July 1852): 382–97.

Van Anglen, Kevin P. *The New England Milton: Literary Reception and Cultural Authority in the Early Republic*. University Park, PA: Pennsylvania State University Press, 1993.

Waddell, Gene. *Indians of the South Carolina Lowcountry, 1562-1751*. Columbia, SC: University of South Carolina Press, 1980.

Walls, Laura Dassow. *Henry David Thoreau: A Life*. Chicago: The University of Chicago Press, 2017.

———. *Seeing New Worlds: Henry David Thoreau and Nineteenth-Century Natural Science*. Madison, WI: University of Wisconsin Press, 1995.

———. *The Passage to Cosmos: Alexander von Humboldt and the Shaping of America*. Chicago: University of Chicago Press, 2009.

Warde, Paul. *The Invention of Sustainability: Nature and Destiny, c. 1500-1870*. New York: Cambridge University Press, 2018.

Ware, Henry, Jr. “The Personality of the Deity.” In *The Works of Henry Ware, Jr.*, 3:26–39. Boston, MA: James Munroe and Company, 1847.

Whelpley, James Davenport. “Humboldt’s Cosmos.” *The American Review* 3, no. 6 (June 1846): 598–610.

White, Gilbert. *The Natural History of Selbourne*. Edited by Anne Secord. [1789]. New York, NY: Oxford University Press, 2013.

Willsky, Lydia. “Prophet among Rebels: Henry David Thoreau and the Creation of a Transcendentalist Bible.” *The New England Quarterly* 86, no. 4 (2013): 625–54.

Willsky-Ciollo, Lydia. *American Unitarianism and the Protestant Dilemma: The Conundrum of Biblical Authority*. Lanham, MD: Lexington Books, 2015.

Wimsatt, Mary Ann. *The Major Fiction of William Gilmore Simms: Cultural Traditions and Literary Form*. Baton Rouge: Louisiana State University Press, 1989.

“Wonder, n.” In *OED Online*. Oxford University Press, June 2020.

Wordsworth, William. *Selected Poems and Prefaces*. Edited by Stillinger Jack. Riverside. Boston, MA: Houghton Mifflin Company, 1965.

“World, n.” In *OED Online*. Oxford University Press, December 2020.

Worster, Donald. *Nature’s Economy: A History of Ecological Ideas*. 2nd ed. New York: Cambridge University Press, 1994.

Wright, N. T. *History and Eschatology: Jesus and the Promise of Natural Theology*. Waco, TX: Baylor University Press, 2019.

Wulf, Andrea. *The Invention of Nature: Alexander von Humboldt’s New World*. New York: Alfred A. Knopf, 2015.

Vita

Lucas Nossaman was born in Little Rock, Arkansas, in 1988. He received a BA in English degree from Harding University in Searcy, Arkansas, in 2011, and a MA in English from North Carolina State University in Raleigh, North Carolina, in 2013.